

Inter-Regional and Inter-District Variations
IN
Levels and Growth of Income in Uttar Pradesh
1968-69 to 1976-77

(A Study Sponsored by the Planning Commission, Government of India)

R. C. SINHA



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GIRI INSTITUTE OF DEVELOPMENT STUDIES
B-42, NIRALA NAGAR, LUCKNOW 226007

1983

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FOREWORD

In the recent past, few attempts were made to generate income statistics for regions and districts, down below the State level. Due to narrower span of the available data, however, the exercises for these sub-entities were institutionalised by the Government only in respect of the commodity producing sectors. The present study, with financial support from the Planning Commission, brings out total and per capita income estimates in a time series for the regions and districts of Uttar Pradesh, involving, in particular, the estimates of district incomes from the services sector. The study also points out that regional factors have to a great extent been responsible for inter-regional and inter-district disparities, which were on the increase during the reference period, despite the policy for development of backward areas on a preferential basis.

This study was originally planned by myself and Dr. V.N. Misra who was on the Institute staff on deputation from Government of India. As Dr. Misra left the Institute to join back the Government, and I could not devote enough time to the study, Shri R.C. Sinha, carried out and completed the study, on my request. I, however, provided whatever advice and consultation was found necessary by Shri Sinha from time to time.

LUCKNOW
August 17, 1983

T.S. PAPOLA

PREFACE

The present study was carried out with a view to having estimates of income for districts and regions of Uttar Pradesh, depicting trends in total and per capita income levels and identifying factors associated with differential performances of the regional economies. It brings out income (Net Domestic Product) estimates at constant prices of 1970-71 and at current prices, using district specific data as far as possible, covering the period 1968-69 to 1976-77, and encompassing both commodity producing and non-commodity sectors.

The estimates show that, during the reference period, the per capita income of the Hill region was highest, followed by Western, Bundelkhand, Central and Eastern regions. Ranking of regions by per capita income is however not always compatible with the notion of development or economic backwardness. This was especially so in the Hill and Bundelkhand regions, which are endowmentally handicapped. The growth rates of the district and regional economies in general were positively associated with the initial per capita income levels leading to an increase in the inter-regional disparities. Regional factors have, to a great extent, been responsible for the situation in spite of a policy of giving priority to development of backward areas. Poor resource position, requirement of a minimum rate of growth of the State's economy and relatively advantageous position of 'developed' areas in making fuller use of infrastructural and institutional facilities were the main factors responsible for undermining the impact of public policy.

The study was financially supported by the Planning Commission to whom we are grateful. The cooperation received from the Director, Economics and Statistics Division and the Director, Area Planning Division, State Planning Institute, and the Director, Institutional Finance, Government of Uttar Pradesh in making available requisite data for the study is highly appreciated. The author is indebted to Dr. T.S. Papola who spared some of his valuable time for discussions, to Dr. B.K. Joshi who expressed his views about dimensions of the study, and to other colleagues for their cooperation. I am also grateful to the supporting research personnel, Sarva Shri G.S. Mehta, D.K. Bajpai, B.K. Bajpai, P.S. Garia, R.C. Tyagi, B.K. Srivastava and to Dr. Y.P. Singh for their involvement in the task, to Shri S.K. Ghosh who carried out mechanical processing of data, and to Shri P.J. Devassykutty and Shri S. Mukherjee who did the typing work.

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August 17, 1983

R.C. SINHA

CONTENTS

	Page
FOREWARD	i
PREFACE	ii
LIST OF TABLES AND ANNEXURES	iv - vii
<u>CHAPTER</u>	
I THE PRESENT STUDY	1 - 7
II METHODOLOGY OF DISTRICT INCOME ESTIMATION	8 - 27
III REGIONAL AND DISTRICT INCOME LEVELS AND GROWTH RATES	28 - 47
IV REGIONAL AND SECTORAL EFFECTS ON INCOME LEVELS	48 - 61
V FACTORS ASSOCIATED WITH STATE'S ECONOMIC GROWTH AND REGIONAL INCOME DISPARITIES	62 - 80
VI PUBLIC POLICY AND REGIONAL DEVELOPMENT	81 - 108
VII MAIN FINDINGS AND CONCLUSIONS	109 - 125
NOTES AND REFERENCES	126 - 129
ANNEXURES	130 - 158

LIST OF TABLES AND ANNEXURES

<u>TABLES</u>	Page
1. Regional Income Estimates at Constant Prices of 1970-71	31
2. Regional Income Estimates at Current Prices	32
3. Regional Per Capita Income Estimates	33
4. Inter-Regional Variations in Terms of Selected Indicators Relating to Demography and Sectoral Development	36
5. Average Annual Compound Growth Rates of Regional Incomes, Population and Per Capita Incomes (1968-76)	38
6. Sectoral Shares in Total Regional Incomes	39
7. Districts Falling in Different Per Capita Income (PCI) Groups in the Base Year 1968-69	42
8. Distribution of Districts by PCI Groups in the Year 1968-69 and 1975-76 (Number)	44
9. Number of Districts by PCI Classes and Total Income Growth Rates	46
10. Number of Districts by PCI Levels and PCI Growth Rates	46
11. Dependency and Productivity Effects on PCI Across Districts	54
12. Indices of Per Capita Income (PCI) and Income Per Worker (IPW) for Regions (State = 100)	56
13. Regional and Sectoral Effects on IPW Across Districts	58
14. Regional Per Capita Income (PCI) Level and Pattern of Sectoral Development	63
15. Regional Contributions to Sectoral Incomes of the State	65
16. Regional and Sectoral Contributions to Economic Growth Rates	67
17. Relationships of Per Capita Income Growth Rate with Selected Indicators of Development Across All the 51 District Observations	69a

Page

18.	Relationships of Per Capita Income Growth Rate with Selected Indicators of Development Across 42 Districts of the Western, Central and Eastern Region	69 b
19.	Distribution of Districts by Annual Growth Rates of Primary Sector and Agricultural Productivity 1968-76	75
20.	Association Between Irrigation Development, Fertilizer Consumption, Cropping Intensity, Landholding Size and Agricultural Productivity	76
21.	Size Composition of Registered and Unregistered Manufacturing Sectors and Growth Rate of Manufacturing Sector in Regions of Uttar Pradesh	79
22.	Growth Rate of Manufacturing Sector in Association with Infrastructural Facilities and Availability of Institutional Finance	80
23.	Flow of Finances from the Government, Commercial Banks and Land Development Banks in Different Regions	87
24.	Plan Expenditure (Divisible) for Regions, 1974-77	88
25.	Divisible Regional Components of Plan Expenditure by Sectors During 1974-77	89
26.	Plan Expenditure on State Irrigation and Coverage of Irrigation in Regions of Uttar Pradesh	91
27.	Village Electrification and Consumption of Electricity in Regions of Uttar Pradesh	93
28.	Density and Construction of Roads in Regions of Uttar Pradesh	94 a
29.	Number of Bank Units Per Lakh of Population in Regions of Uttar Pradesh (1973-74)	95
30.	Commercial Bank Loaning in Sectors and Regions of Uttar Pradesh (1975-76)	97
31.	Loan Distributed by Land Development Bank Per Hectare of Net Area Sown and Short-Term Loan Distributed Per Capita (Rural) In Regions of Uttar Pradesh	99
32.	Coefficients of Variation in District Per Capita Incomes within Regions and State	100

	Page
33. Road Density in Association with Selected Indicators of Development	102
34. Relationships Among Major Characteristics and Performance of Agriculture Across 46 Districts of Uttar Pradesh, Excluding Hill Region	104
35. Financial Inflows in Relation to Cropping Pattern and Mechanisation in Agriculture Across all 51 Districts	105
36. Financial Inflows in Relation to Cropping Pattern and Mechanisation in Agriculture Across 46 Districts, Excluding Hill Region	106

ANNEXURES

1. Regional and District Income Estimates at Constant Prices of 1970-71	130
2. Regional and District Income Estimates at Current Prices.	132
3. Estimated Population of Districts and Regions for the Years 1968-69, 1972-73, 1975-76 and 1976-77	134
4. Regional and District Per Capita Income Estimates at Constant Prices of 1970-71	136
5. Regional and District Per Capita Income Estimates at Current Prices	138
6. Dependency and Productivity Effects in the Per Capita Income Differences Between Districts and State as a Whole (1972-73)	140
7. Regional and Sectoral Effects in Differences of Aggregate Per Worker Income Between Districts and States as a Whole (1968-69)	142
8. Regional and Sectoral Effects in Differences of Aggregate Per Worker Income Between Districts and State as a Whole (1972-73)	144

Page

9.	Regional and Sectoral Effects in Differences of Aggregate Per Worker Income Between Districts and State as a Whole (1975-76)	146
10.	Average Annual Compound Growth Rates of Sectoral Incomes and Per Capita Income of Districts (1968-76)	148
11.	Distribution of Income by Major Sectors of the Economy for Districts and Regions of Uttar Pradesh, Based on the Estimates at Constant Prices of 1970-71 (Percentages)	150
12.	Distribution of Income by Major Sectors of the Economy for Districts and Regions of Uttar Pradesh, Based on the Estimates at Current Prices (Percentages)	152
13.	Selected Indicators of Sectoral Characteristics and Infrastructural Development and Financial Resources Inflows for Districts of Uttar Pradesh	155

CHAPTER I

THE PRESENT STUDY

The Problem

In the initial years after the Independence, there were severe constraints to having a systematic approach for socio-economic development in the country on many counts, one of them being the inadequacy of data necessary for formulation of economic policies. At that stage the need for 'authoritative' estimates of national income was very much felt (1). However, in India, the first attempt on income estimation was made in 1876 by Dadabhai Naroji at the country level, followed by others (2). Subsequently there was an uprise of research interest in the area, coupled with the need for similar exercises at the state and district levels. The first state level income estimates were published in the year 1923 for the Madras state (3). In case of Uttar Pradesh the first attempt was made by S.G. Tewari, covering a period 1921-39, published in the year 1951 (4). As the individual attempts suffered from considerable limitations on account of resource constraints and limited data access, the task was taken up by the state governments, beginning the year 1948-49 (5).

With the passage of time, as the concern for backward areas kept growing, the concept of planned development was reoriented to have outlooks for regional and district

development, particularly from the Fourth Plan. Uttar Pradesh is one of the states where the lower level planning came to be emphasised. The need for the district income estimates was thus obvious. The attempts so far made in this direction, before the task was taken up by the state statistical bureau, were discrete and suffered with considerable limitations. The lead was however taken by the National Council of Applied Economic Research (NCAER) who brought out income estimates for 289 districts of the country, including all of Uttar Pradesh, with sectoral break-ups as Agriculture, Manufacturing and Services (6). In the year 1974, Baljit Singh (7) published his income estimates for 1970-71 (at 1960-61 prices), covering the districts of U.P. These estimates were reported by a 9 sector classification - Cultivation; Animal Husbandry; Forestry and Fishery; Mining and Quarrying; Large Scale Manufacturing; Small Scale Manufacturing; Construction; Transport, Trade and Communication and Services. The last attempt at individual level was made by A.K. Singh (8) who worked out the estimates for the districts of the Western and Eastern regions for the year 1951, 1961 and 1971, with components for primary, secondary and tertiary sectors, at 1951 prices. The official estimates of incomes for districts of Uttar Pradesh were first published in the year 1978 on an annual basis, covering the years 1960-61, 1968-69 and 1970-71 to 1973-74 (9). Prepared by the State

Statistical Bureau (SSB), these estimates refer only to the commodity producing sectors, namely Agriculture & Animal Husbandry, Forestry and Logging, Mining and Quarrying, Manufacturing (Registered), and Manufacturing (Unregistered).

This pattern continues upto now, ignoring the tertiary sector which accounts for about one-third of the State's income and varies markedly in weight across districts (10). Though the individual attempts on district income estimation referring to some of years as mentioned above, gave out the shares of tertiary sector in district incomes, these estimates could hardly be comparable among themselves or with the present ones owing to differences in methodology and the data base (11).

Further efforts are

therefore needed in this direction, not only to have more authentic estimates but also for a synthesis of inter-district differences in levels and growth of per capita income. Thus, there was a good case for working out a time series of income estimates for regions and districts of Uttar Pradesh and thereby identifying the factors causing disparities among areas in terms of income levels and growth rates.

The Present Study

The study was carried out in the above background, with financial support from the Planning Commission. It may be stated here that the proposal of the study, as approved by the Planning Commission, covered a reference period from 1968-69 to 1973-74. But since the requisite data was avail-

able upto the year 1976-77, it was desirable to extend the period accordingly. The broad objectives of the study are :

1. to work out a time series of income estimates for districts and regions of Uttar Pradesh for the reference period 1968-69 to 1976-77;
2. to study the inter-regional and inter-district differences in levels and growth rates of income;
3. to measure 'regional' and 'structural' effects accounting for inter-district/regional differences in per capita incomes in the State;
4. to study, on an inter-area basis, the sectoral shares in the total income in relation to income growth; and
5. to identify the factors associated with sectoral growth in different regions of the State.

Approach and Organisation

The study is based on secondary data and consists essentially of two parts, one of district income estimation and the other of the analysis of inter-regional and inter-district differences in income levels and growth rates.

Income estimation by itself is a wholesome task that needs to be carried out more comprehensively than could be possible in the present context. But as the district income estimates for commodity producing sectors were available from the Economics and Statistics Division, State Planning Institute, Government of U.P., it was considered worthwhile to utilise them and to work out corresponding estimates for the remaining sectors of district economies, rather than carrying out very detailed exercises at the expense of the proposed inter-regional and inter-district analysis. The estimates for the commodity producing sectors, namely Agriculture and Allied

(cultivation, animal husbandry, forestry and logging and fishery), Mining and Quarry, Manufacturing (Registered) and Manufacturing (Unregistered) as were available at constant prices of 1960-61, were revalued at 1970-71 prices, by using appropriate indices. The corresponding estimates at current prices were adopted as such. For the remaining sectors namely 'construction' and 'services', district incomes were estimated at 1970-71 prices and at current prices, following the income approach. Details of the methodology are given in the Chapter II.

With view to identifying relatively advanced and backward areas among the officially recognised agro-climatic regions and districts of Uttar Pradesh, a synthesis of per capita income levels and growth rates have been made. To the extent per capita income, could be taken an indicator to represent various facets like levels and structure of productive activities, levels of technology and pattern of demand, rate of investment, an inter-district comparison has been made to examine the association between per capita income level and income growth rate (Chapter III).

Besides the questions as to what extent did the inter-regional and inter-district disparities existed at a point of time and changed over the reference period, attempt has been made to look into the factors responsible for the relative performances of the regional and district economies. The factors have been considered in two groups, namely the

Regional and structural (or Sectoral) factors. The regional factors get manifested by such characteristics as of natural endowments, size and pattern of land distribution, available infrastructural facilities, initial levels of socio-economic development, degree of urbanisation, locational advantages and disadvantages, and other externalities and values and attitudes of the people, which are more or less given over a period of time. Given the regional factors, the inter-area differences in the levels of development would depend on profiles and pattern of economic activities, i.e. the sectoral effect, which shows the extent to which are the opportunities available to the people in undertaking investments in different activities. It hardly needs to be mentioned that the region effect interacts with development and growth of activities, making it impossible to precisely measure the contributions of regional and sectoral factors (referred to as Regional and Sectoral Effects) in rendering an area relatively developed or backward. However, a decomposition model has been used to study the extent to which the Region Effect and Sectoral Effect were responsible for inter-district disparities in per capita income (Chapter IV). Attempt has also been made to bring out the major factors responsible for differential performances of the regional economies, with particular reference to agricultural and industrial sectors, using inferential techniques (Chapter V).

So far the inter-area disparities are concerned, they normally tend to grow if left to themselves. There the role of the government in reducing the disparities and improving the performance of the State's economy, by ensuring faster developments in backward areas, becomes imperative. The major areas of the government intervention are of upgrading the endowmental status by creation of physical infrastructure and enabling people to undertake investments, by making available certain institutional facilities on a priority basis in backward areas. An attempt has therefore been made to relate the pace of economic development with selected policy indicators in both financial and physical terms, on inter-regional and inter-district basis. This is presented in Chapter VI. The main findings and conclusions of the study are presented in the Chapter VII.

CHAPTER II

METHODOLOGY OF DISTRICT INCOME ESTIMATION

A Review

While a few attempts have been made to yield district income estimates as cited earlier, the documents so produced scarcely touched upon the methodology, except for the State Statistical Bureau (SSB) which has brought out a separate document on the subject. The methodology of the SSB estimates pertaining to commodity producing sectors, has not been covered in this section. The methods and procedures followed in earlier exercises are briefly summarised as follows.

The NCAER paper (12) which brought out the district income estimates for the year 1955-56, used the concept of income as the income 'originating from current production of goods and services within the geographical boundaries of the districts' as followed by others too. The method of estimation adopted by NCAER was the same as followed by the National Income Committee (NIC, 1954). The sectoral classification adopted by the NCAER was Primary Secondary and Services. There, for valuation of output levels, state level prices were used, which renders the district estimates particularly suitable for an analysis of shares of individual districts in the state's economy. For a synthesis of inter-district differences in real income level of the people, however, these estimates have to be looked upon in the background of the inter-district income flows as well as differences in price levels between districts and the State. The paper on district income

brought out by Baljit Singh (13) does not describe the methodology. A.K. Singh (14), in estimating incomes, with the reference years 1951, 1961 and 1971 for the districts of Uttar Pradesh, used product approach to compute net output of agriculture, animal husbandry and fishery and factory sectors. In case of the remaining sectors, namely small enterprises; construction; railways; other transport, communication and trade and commerce; public administration (termed as government employees); medical, educational and other services; and house property, the income approach was used. In the exercise, the author encountered various problems due to non-availability of district specific data, and thereby used, in a number of cases, yield rates, input rates and product prices available for regions, State and the country as a whole. The author points out that because of data gaps, it was not possible to estimate the income accrued to the people, a 'superior' concept. Moreover, while using income approach for certain sectors, the inter-area differences in labour productivity could not be fully taken care of.

It may be noted that in the estimation of income of a region or district, the commonly used concept has been of sum of total incomes generated from different economic activities within the geographical boundary. Such estimates are meaningful particularly for studying regional contributions to the levels and growth rate of the State's or national economy. The concept of accrued income, though more appropriate in the

context of welfare planning, has not been adopted at the lower levels upto now for want of data on inter-area income flows. Thus, while per capita income is considered to be a powerful indicator of the level of economic development, it should be kept in mind that inter-regional disparities in terms of the economic conditions of the people get underscored by the available income estimates for the States, regions or district. Another important issue relating to regional income is of appropriateness of the methodology. At a point of time the data span for a geographical (or administrative) sub-unit is smaller, compelling the use of relatively crude methodological (or procedural) options in an estimational exercise as in the case of district vis-a-vis the State, and a State vis-a-vis the country as a whole. It would however be difficult to specify exactly the data requirements for the purpose for, one, there is no unique solution to the problem of income estimation and, second, the approach and procedures an estimational exercise is to be based on the availability of data which is collected primarily for other purposes. However, with the passage of time, the data base as well as the methodology of district income estimation has improved. As regards the commodity sectors, the estimates thrown by the State Statistical Bureau, have so far the most comprehensive basis of computations. But the estimates for the 'services' sector were not computed by the SSB (15). The estimates presented in this report are inclusive of the incomes from the services sector, and are based on the following methodology.

Methodology of the Present Estimates of
District Incomes

As stated earlier, the estimates of district incomes for commodity producing sectors, available at constant prices of 1960-61 and at current prices from the SSB, Government of Uttar Pradesh (16) have been utilised. As the price reference of 1960-61 was too old, the district income estimates were re-valued at 1970-71 prices. The estimation for remaining sectors was carried out essentially by allocating the corresponding estimates of the State Domestic Product (SDP) across districts, taking into account, as far as possible, the relative size of activities and variations in productivity levels. Here we first give the sectoral classification, and a description about the districts. This is followed by the estimational procedures involved in case of the district level and regional income estimates.

i). The Sectors

The commodity producing sectors, for which the SSB estimates were available, are as follows :

1. Agriculture and Allied
 - a) cultivation and animal husbandry
 - b) forestry and logging
 - c) fishing
2. Mining and Quarrying
3. Manufacturing
 - a) registered
 - b) Unregistered

It is seen that cultivation and animal husbandry sectors were grouped together because of lack of a plausible basis for estimating production costs in these two sectors separately. The remaining sectors for which the estimates were worked out on allocative basis, are

1. Construction
2. Services (Tertiary Sector)
 - a) transport, storage and communication
 - b) trade and commerce
 - c) other services

The above sectors were defined by a regrouping of eight sectors of the classification made by the Central Statistical Organisation. This was done with a view to bringing the activity groups in correspondence with the census classification of workers. Activities covered by the above four sectors are :

Construction : Construction and maintenance (including demolition) of buildings, roads, railways, bridges, telegraphs, telephones, waterways, reservoirs, etc. including the construction work carried out by industries.

Transport, Storage and Communication : Air, rail, road and water transports, services incidental to transport such as packing, casting, loading, unloading etc. storage, warehousing and communication such as post and telegraph, telephone, wireless, signalling, information and broadcasting.

Trade and Commerce : Wholesale and retail trade, commercial transactions relating to export and import, real estates and properties, stocks and shares, insurance, money lending and banking etc.

Other Services : Public utilities like electricity, gas and water supply, sanitary services, public administration, professional services, etc.

ii) The Districts

The number of districts at present in Uttar Pradesh is 57; the region-wise break-ups are Western 19, Central 10, Bundelkhand 5, Eastern 15 and Hill 8. Until 1974, before the creation of districts Lalitpur, Ghaziabad and Kanpur Dehat, hitherto parts of districts Jhansi (Bundelkhand), Meerut (Western) and Kanpur (Central), the number was 54. As data for these new districts for initial years of the reference period was not available separately, the estimates for district Jhansi refers to Jhansi and Lalitpur taken together, and for Meerut to Meerut and Ghaziabad combined. Similarly, the reference of Kanpur includes Kanpur Dehat. Requisite data was also not available for the three border districts namely Pithoragarh, Chamoli and Uttar Kashi in the Hill Region. So these districts were taken together with the ones from which they were carved out. In the Hill region the number of districts (including the district groups) for which the estimates were worked out is 5, namely Almora & Pithora-

garh, Dehra Dun, Garhwal & Chamoli, Nainital and Tehri-Garhwal & Uttar Kashi. Thus, the total number of district units in Uttar Pradesh as referred to in this report is 51 : Western 18, Central 9, Bundelkhand 4, Eastern 15 and Hill 5.

Options and Procedures

This section has been divided in two parts, the first one relates to the commodity producing sectors and the other to the remaining sectors. To the extent the District Domestic Product (DDP) estimates and State income estimates of the SSB for particular sectors were utilised in arriving at the total income estimates for the districts and regions, a brief description of the methodology, as used by the SSB has also be given at appropriate places.

i) Commodity Sectors

As stated earlier, the DDP estimates for the commodity producing sectors were already available from the SSB for the years 1968-69 and 1970-71 to 1975-76 at constant prices of 1960-61 and upto the year 1976-77 at current prices. The SSB estimates at current prices were adopted as such. But, since the 1960-61 price levels appeared to be too old for the current reference, it was considered desirable to bring them at 1970-71 prices. For this purpose sector-wise price inflation factors were computed for the individual districts and applied on the income series available at 1960-61 prices. For each district i , the price factor for j th sector, i.e. PF_{ij} was obtained as

$$PF_{ij} = \frac{X_{ij} \text{ of year 1970-71 at current prices}}{X_{ij} \text{ of year 1970-71 at 1960-61 prices}}$$

Here X_{ij} denotes the income of i th district from j th sector. The DDP of i th district from j th sector at time t , i.e. $Y_{ij}(t)$, expressed as :

$Y_{ij}(t)$ at 1970-71 prices = $PF_{ij} \times X_{ij}(t)$ at 1960-61 prices,
and

$$Y_{ij}(t) \text{ at current prices} = X_{ij}(t) \text{ at current prices.}$$

The X_{ij} 's were estimated by the SSB, using, as far as possible, district specific data on production and prices, unlike the NCAER (17) who used the State average prices for estimating district incomes. The estimational procedures used in case of the commodity sectors are given in a separate document brought out by the SSB (18). A summary version of the same is presented here (for different sectors) in the following order : (a) Agriculture (cultivation and animal husbandry), (b) Forestry and Lagging, (c) Fishing, (d) Mining and Quarrying, and (e) Manufacturing (registered and unregistered).

(a) Agriculture (Cultivation and Animal Husbandry)

The District Domestic Product (DDP) from cultivation and animal husbandry activities was estimated as net output, which was conceived as gross output of cultivation plus net product of Government irrigation systems plus gross output of animal husbandry minus input costs relating to cultivation and animal husbandry. The gross output from cultivation was valued for 62 agricultural commodities, as far as possible, by using

physical production estimates and harvest prives. The commodities included the products and by products of cultivation. At district level the production statistics were available only for 30 principal crops, along with the harvest prices. In case of other specified crops only the area estimates for districts were available. The outturn of these crops was estimated by using the corresponding state level yield rates. But even the state level yield rates were not available for 'unspecified' crops. The output of these crops was estimated in value terms directly on the basis of certain norms in relation to the value of production of some other crops. Similarly the district output levels of the by-products and miscellaneous agricultural products were estimated directly in value terms by using state level norms in relation to area or output of certain crops available for the districts.

For evaluating agricultural production, the post-harvest prices were available at district levels for the principal crops, based on primary sources. However, in case of sugar-cane the average price paid by the sugar factories was utilised, while State's average prices were used for certain items, namely sann-hemp, jute, tea, opium, other fibres, other drugs and narcotics. The outturn of by-products of agriculture was evaluated by using price proxies following the nearest commodity approach, subject to the availability of data. Adjustments in the output estimates were also made for the price differentials on food grains procured by the government.

Income from this sector also included the value added in rice husking, carried out by cultivators themselves. This was done by allocating the state level estimate of value added from rice milling among districts on the basis of number of workers in rice mills in different districts.

The income generated from public irrigation systems was conceived as the amount of water charges realised by the government. The district level estimates of this component were derived as apportionments of the State level estimates in proportion of areas irrigated by canals. The estimate of state domestic product (SDP) was, in turn defined as sum total of compensation to the employees, interest payments and operating surplus in the public irrigation sector (current receipts minus current expenditure), and was computed on the basis of data available from the State Government budget.

The output of animal husbandry sector was based on district-wise estimates of livestock in various categories. As regards the gross output, the value of milk production was based on the estimates of milk yield rates, available only for the regions. For other animal husbandry products, the value of output was worked out, following certain norms determined by the Central Statistical Organisation (CSO) for estimation of the State income.

The various items considered as inputs for the agriculture and animal husbandry sector are seed, fertilizers, manures, pesticides and insecticides, electricity, diesel oil, live-stock feed, irrigation charges, marketing charges, maintenance and other operational costs and depreciation. The district level estimates of values of inputs were generally worked out by distributing the corresponding State level estimates on the basis of related data as could be available for the districts.

39247

(b) Forestry and Logging

The DDP from forestry and logging activity was worked out by estimating district output levels of forest products resulting from a distribution of the state output values of major products (Timber, firewood and charcoal) on the basis of district-wise production estimates, taking into account inter-district variations in product prices. In case of minor forest products, the district output estimates were obtained on the basis of forest circle-wise values and district-wise areas under forest. Given the district output levels, the corresponding input cost estimates were subtracted from them to arrive at the DDP estimates. The costs were taken to be repairs and maintenance of forest roads and other assets, operational costs and depreciation, each of which was computed on a normative basis.

(c) Fishing

The DDP estimates of fishing were worked out by allocating the corresponding SDP estimate on the basis of district-wise

production estimates, taking into account inter-district variations in prices of the fish varieties for which the data was available.

(d) Mining and Quarrying

The DDP estimates of this sector were arrived at by distributing the SDP estimate across districts in proportion of the district output values of minerals in respect of which the data was available.

(e) Manufacturing

The DDP of from manufacturing activities was worked out as the sum total of value added, estimated separately for registered and unregistered sectors. For the registered sector the net value added for districts was taken from the Annual Survey of Industries. To cover up the cases of non-response an additive correction factor was first worked out for the SDP and then this additive component was distributed among districts in proportion of number of workers. In case of the unregistered sector, the DDP estimates were arrived at by distributing the regional domestic product estimates over districts in proportion of the number of workers in the household sector. The regional estimates in turn were based on proportional shares of the regions as available from a survey data and the aggregative estimate for the State provided by the CSO. But as the SDP estimate did not cover the three border districts (Chamoli, Pithoragarh and Uttar Kashi) of the State, the SDP

was adjusted to account for these districts on the basis of number of workers in household industries and inter-districts variations in wages and salaries per worker, before allocating it among the regions.

The DDP estimates for the aforesaid commodity sectors were thus obtained at current prices. The corresponding estimates at 1960-61 prices were similarly worked out by using the 1960-61 district prices, to the extent available, as also in certain cases by deflating the output estimates at current prices following the nearest commodity approach. The method for arriving at the DDP estimates at 1970-71 prices has already been stated earlier. The procedure of income estimation for the remaining sectors is described below.

(ii) Remaining Sectors

The estimates of DDP from non-commodity sectors were worked out by allocating the corresponding SDP estimates across districts in proportion of number of workers, taking into account rural-urban compositional variations between a district and the State as a whole, separately for the activities in four groups, namely Construction (C); Transport, Storage and Communication (TSC); Trade and Commerce (TC); and other services (OS). It may be noted that these four sectors were identified from the eight-sector classification adopted by the CSO, viz. (i) Construction, (ii) Electricity, Gas and Water Supply, (iii) Transport Storage and Communication, (iv) Trade, Hotels and Restaurants, (v) Banking and

Insurance, (vi) Real Estate, Ownership of Dwellings and Business Services, (vii) Public Administration and Defence, and (viii) Other Services. But since the size distribution of these activities across districts was available in terms only of number of workers from the population census (1971) and in correspondence only of the said four-sector classification, a regrouping of the sectors was necessary although the SDP for each in the group of eight sectors was available. Thus, the sector 'Trade and Commerce' of the four-sector classification represented the aggregate of sectors mentioned at (iv), (v) and (vi), and the re-defined 'Other Services' comprises the ones at (ii), (vii) and (viii). The sectors 'Construction' and 'Transport Storage and Communication' in the four sector classification are same as those at (i) and (iii) respectively. The procedures used for arriving at the cross-district distribution of the SDP from the redefined four activity groups are presented here in two parts, namely (a) estimation of the number of workers, and (b) allocation of the SDP across the districts, as described below.

(a) Estimation of the Number of Workers

Though the district-wise population estimates for different years of the entire reference period had already been worked out by the SSB, it was more appropriate to work it out again for the years 1971-72 onwards on the basis of the growth rates during 1971-1981; the SSB estimates for these years were based on certain assumed population growth rates considerably lower than

actuals during 1971-81.0 For this purpose the district-wise population estimates for the years 1971 onwards were computed on the basis of the district-wise growth rates and similar exercise was done separately for the State as a whole. The figure for the year 1971-72 was taken to be the average of those for the years 1971 and 1972 for a geographical unit. Then, taking the State level estimates as control totals, the regional estimates (sum over corresponding districts) and the individual district estimates were adjusted in that order by using multiplicative correction factors. As regards the worker population ratios, there was no plausible basis of estimating them for different years; the 1981 census figures of workers in above mention sectors were not published. Therefore, the worker population ratios pertaining to the non-commodity sectors as obtained for the districts, regions and the State in the year 1971 were used as such for the years in question. The regional totals and the district estimates of workers were than adjusted for rounding errors, in that order taking the State level estimates as check total for the re-defined four sectors separately.

(ii) Cross-District Allocation of SDP

The SDP estimates, used for working out their district-wise break-ups, were taken from the State Income Estimates, Uttar Pradesh 1960-61 to 1974-75 (Bulletin No.157) for the years 1968-69 and 1970-71 and from the State Income Estimates 1970-71 to 1979-80 (Bulletin No.182) for the years 1970-71 to 1976-77.

It may be mentioned here that the Bulletin No. 157 provided the estimates worked out by SSB at constant prices of 1960-61 and at current prices, while the Bulletin No. 182 gave the real trends at 1970-71 prices along with the current price estimates, beginning the year 1970-71. For the years 1970-71 onwards, the SDP estimates at 1970-71 prices and current prices, available from the Bulletin No. 182 were used as such. The sectoral corresponding SDP estimates for 1968-69 were arrived at by deflating the 1970-71 estimates available from the Bulletin No. 182 in the proportions of the estimates for 1970-71 to those for 1968-69, reported in the Bulletin No. 157. The SDP estimates for all individual years in question, at both constant prices of 1970-71 and current prices, thus available, were re-grouped into four sectors and allocated among the districts in following manner.

For individual years, price levels and the sectors (C, TSC, TC and OS or defined earlier), the allocational exercise was carried out in two stages. In the first stage the SDP of each sector was distributed among districts in proportion of the estimated number workers. The district estimates so worked out implied equality in per worker income levels between the districts and the State. In the second stage the district level estimates were corrected for inter-district variations in per worker income levels. The inter-district variations were taken to be resulting from the differences in rural-urban composition of workers and in the average productivity (or wage) levels at different points of time. However, for want any systematic data ..

the inter-district differentials in the changes in the per worker income levels could not be taken care of. The DDP estimates of non-commodity sectors therefore imply that the proportional change in the average per worker income in a district over a period of time was the same as that for the State as a whole. This would only marginally affect the total income estimates. So far as the variations due to rural-urban composition of workers is concerned, they were incorporated to certain extent by means of correction factors with the help of the sectoral income estimates for rural and urban areas of Uttar Pradesh, for the year 1970-71 worked out by Bakul H. Dholakia and Ravindra H. Dholakia (19). The correction factor (CF) was devised to modify the DDP estimates of non-commodity sectors by accounting for district to State differences between rural and urban proportions of workers in the aggregate per worker income level of a sector in a district. There the ratio of per worker income in urban areas to that in rural areas was however assumed to be equal across the districts. For this purpose the individual sectors, as defined by the authors, were suitable regrouped to represent the non-commodity sectors C, TSC, TC and OS, and the corresponding sectoral ratios of per worker income in rural and urban areas to the aggregate (Rural urban combined for that sector) per worker income, denoted here by $x(R)/x$ and $x(U)/x$ respectively, were worked out by using the 1971 census data. The formulation of the correction factor (CF) was as follows.

Let for a particular sector $x(R)$, $x(U)$ and x denote per worker income levels for rural, urban and combined areas; $n_i(R)$ and $n_i(U)$ the proportions of rural workers and urban workers to total workers in i^{th} district, and $n(R)$ and $n(U)$ the corresponding proportions for the State; and y_i the aggregate (Rural and Urban combined) per worker income level in i^{th} district, taking into account the difference between rural-urban proportions of workers between the district and the State as a whole. Also let x_i denote the DDP of a sector in i^{th} district resulting from the district-wise distribution of SDP in proportion of number of workers and y_i the corrected estimate. The correction factor (CF_i) for i^{th} district may be defined as $CF_i = y_i/x_i$. Or by the condition (2) and identity (4) below

$$CF_i = y_i/x_i \quad \dots \quad (1)$$

The conditions are

$$x_i = x \quad \dots \quad (2)$$

$$y_i = x(R) n_i(R) + x(U) n_i(U) \quad \dots \quad (3)$$

and the identities are

$$y_i/x_i = y_i/x_i \quad \dots \quad (4)$$

$$x = x(R) n(R) + x(U) n(U) \quad \dots \quad (5)$$

$$n_i(R) = 1 - n_i(U) \quad \dots \quad (6)$$

$$n(R) = 1 - n(U) \quad \dots \quad (7)$$

The right hand side of the expression (1) may thus be evaluated as

$$y_i/x = \left[x(R)n_i(R) + x(U)n_i(U) \right] / x$$

(in view of equation 3)

$$= \left[x - x(R)n(R) - x(U)n(U) + x(R)n_i(R) + x(U)n_i(U) \right] / x \quad \dots \quad (8)$$

(by adding x and subtracting right hand side of equation 5 from the numerator of the above expression, the value of which is therefore unchanged)

If we express $n_i(R)$ and $n(R)$ in terms of $n_i(U)$ and $n(U)$ following equations (6) and (7), and simplify the expression (8), it becomes

$$y_i/x = 1+k \left[n_i(U) - n(U) \right] \quad \dots \quad (9)$$

$$\text{where } K = \left[\frac{x(U)}{x} - \frac{x(R)}{x} \right] \quad \dots \quad (10)$$

The value of K was computed on the basis of the estimates of Bakul H. Dholakia and Ravindra H. Dholakia and thus the sector-wise income correction factors for each district (CF_i , which is multiplicative) was finally expressed as

$$CF_i = 1+K \left[n_i(U) - n(U) \right] \quad (\text{in view of equation 1})$$

so that

$$Y_i = X_i CF_i \quad \dots \quad (11)$$

Using the above correction factors, the DDP estimates of non-commodity sectors were thus corrected for inter-district variations in rural-urban composition of the size of activities (defined in terms of number of workers), and then adjusted with the corresponding values of the SDP. It may be mentioned here that expenditure approach was adopted for computing the state income from Construction sector. The SDP estimates relating to the remaining sectors were based on income approach.

As evident from the above description of the methodology, the district income estimates (DDP) suffer from limitations primarily on account of non-availability of district specific data. Therefore, for some of the sectors the DDP's were derived from the corresponding SDP estimates using some allocational basis. The methodology of State income estimation has been published by the SSB (20). The regional income estimates were arrived at by summing the DDP estimates over districts in each region. Lastly, the DDP estimates have not been adjusted with the corresponding state totals because such adjustments would imply only some undirectional and marginal changes in them but not to any improvement in their quality, meaningful in the context of the inter-district analysis.

CHAPTER III

REGIONAL AND DISTRICT INCOME LEVELS AND GROWTH RATES

Over a period of time the relative position of Uttar Pradesh in terms of per capita income level, has worsened as compared to other states of the country. Although the economy of Uttar Pradesh appeared to be 'picking up' after the green revolution (21), the State continued to remain amongst the bottom few. During the first two decades (1950-51 to 1970-71) the average annual compound growth rate of the national per capita income worked out to 1.5 per cent, while that of the state not even 1 per cent (22). As the situation started revealing, it fetched the attention of the government for development of backward regions (23) and subsequently for backward districts (24), implying an increase in the pace of the State's economic growth and reduction in inter-regional disparities. For the purpose of planning, therefore, a reference to regional and district income levels is important. This chapter examines the inter-regional and inter-district differences in income levels and growth rates and studies the trends in inter-regional disparities in terms of per capita incomes levels. The regional and district-wise estimates of total income, at constant prices of 1970-71, are presented in Annexure-1 for the years 1968-69 and 1970-71 to 1975-76, and those at current prices upto the year 1976-77 in Annexure-2. The population estimates are given in Annexure-3 and the per

capita income estimates for the regions and districts at 1970-71 prices in Annexure-4, and at current prices in Annexure-5. The regional income levels and growth rates have been presented below and studied in association with the prevailing demographic and socio-economic conditions, followed by an appraisal of inter-district variations in income levels and growth rates.

Regional Income Levels and Growth Rates

During the initial year 1968-69 the regional total income levels lay between a little over Rs.1497 crores (Western) and Rs.1183 crores (Bundelkhand) at 1970-71 prices (Table-1), which stood at 41.20 per cent and 5.03 per cent of the State's total income. At current prices the estimates for Western and Bundelkhand regions for 1968-69 came to Rs.1542 crores and Rs.180 crores respectively (Table-2). The values at 1970-71 prices being lower than those at 1968-69 prices suggest that the average price levels in 1970-71 were lower than those in the year 1968-69. This is supported by the available price data (25). In general, however there has been an upward trend in prices. Over the reference period, the income share exhibited an increase in case of the Western region and a decline for the Eastern region. A comparison of the regional percentage income shares based on the estimates at constant prices with those at current prices suggests that during the reference period, the rate of increase in prices was the highest in the Eastern region and the lowest in the

Western region. It finds support from the fact that the rate of growth of real income, was markedly different among the two regions and the lowest in the Eastern region. As the Eastern region alone represents about 38 per cent of the State's population, and an area of 85.8 thousand sq. kms. (29.14 per cent of the State), concerted efforts are therefore necessary for development of this region, and more so in view of its much lower per capita income level as compared with other regions and the State as a whole.

The regional per capita income estimates are presented in Table-3. The per capita income at 1970-71 prices in the year 1968-69 was the highest Rs.603 in the Hill region, followed by Rs.502, Rs.448, Rs.439 and Rs.333 respectively for the Western, Bundelkhand, Central and Eastern regions, for which the figures for the year 1975-76 were Rs.703, Rs.574, Rs.496, Rs.479 and Rs.339 respectively. As current prices the regional PCI levels for 1968-69 and 1976-77 (Rs.) were : Hill 598 and 1093; Western 517 and 967; Bundelkhand 440 and 819; Central 442 and 844; and Eastern 339 and 589.

As regards the relative positions of different regions in terms of per capita income, a few points may be noted. First, as seen above, the Hill regions comes on the top, yet the hill districts have been recognised to be backward. In fact, two of the hill districts (Nainital and Dehradun) which stretch on plain land, are highly developed both agriculturally

Table 1 : Regional Income Estimates at Constant Prices of 1970-71

(Crore Rs.)

Sl. No.	Year	REGION					State
		Western	Central	Bundel- khand	Eastern	Hill	
1.	1968-69	1497.34 (41.20)	662.25 (18.23)	182.93 (5.03)	1072.24 (29.52)	218.63 (6.02)	3633.39 (100)
2.	1970-71	1802.80 (42.55)	768.29 (18.13)	212.05 (5.02)	1195.76 (28.22)	257.71 (6.08)	4236.62 (100)
3.	1971-72	1722.70 (43.03)	715.98 (17.88)	203.82 (5.09)	1118.24 (27.93)	242.85 (6.07)	4003.60 (100)
4.	1972-73	1847.21 (43.66)	761.74 (18.01)	236.47 (5.59)	1112.46 (26.30)	272.33 (6.44)	4230.20 (100)
5.	1973-74	1767.33 (42.62)	754.67 (18.20)	219.55 (5.30)	1130.61 (27.26)	274.69 (6.62)	4146.86 (100)
6.	1974-75	1891.87 (44.40)	783.75 (18.40)	206.18 (4.84)	1108.33 (26.02)	269.98 (6.34)	4260.11 (100)
7.	1975-76	1985.71 (43.02)	832.46 (18.03)	236.37 (5.12)	1255.12 (27.20)	306.18 (6.63)	4615.85 (100)

Note : Figures in parentheses denote percentages to the total.
 The figures for the State are the sum total over the regions.

Table 2 : Regional Income Estimates at Current Prices

(Crores Rs.)

Sl. No.	Year	REGION					State
		Western	Central	Bundel- khand	Eastern	Hill	
1. 1968-69		1542.00 (41.84)	665.86 (18.66)	179.58 (4.87)	1081.98 (29.35)	216.75 (5.88)	3686.17 (100)
2. 1970-71		1802.80 (42.56)	768.29 (18.13)	212.05 (5.01)	1195.76 (28.22)	257.71 (6.08)	4236.62 (100)
3. 1971-72		1863.03 (42.07)	997.51 (18.01)	202.64 (4.58)	1317.10 (29.74)	248.01 (5.60)	4428.29 (100)
4. 1972-73		2373.58 (42.99)	1005.15 (18.21)	297.76 (5.39)	1532.18 (27.59)	321.35 (5.82)	5521.04 (100)
5. 1973-74		2627.75 (41.57)	1197.79 (18.95)	328.61 (5.20)	1770.35 (28.01)	396.56 (6.27)	6321.07 (100)
6. 1974-75		3153.72 (42.52)	1385.41 (18.68)	321.89 (4.34)	2081.77 (28.07)	474.06 (6.39)	7416.84 (100)
7. 1975-76		3118.92 (42.47)	1364.87 (18.58)	339.05 (4.62)	2059.42 (28.03)	462.38 (6.30)	7344.64 (100)
8. 1976-77		3421.86 (42.64)	1498.92 (18.68)	399.17 (4.97)	2215.19 (27.60)	490.75 (6.11)	8025.89 (100)

Note : Figures in parentheses denote percentages to the total.
 The figures for the State are the sum totals over the regions.

Table 3 : Regional Per Capita Income Estimates

Price level/ Sl. No./ Year	REGION					(Rs.)
	Western	Central	Bundel- khand	Eastern	Hill	
<u>At Constant Prices of 1970-71</u>						
1. 1968-69	502.20	439.90	448.30	333.20	602.70	430.10
2. 1970-71	581.40	492.30	499.10	331.50	681.40	483.80
3. 1971-72	524.50	449.50	470.20	321.70	627.90	442.20
4. 1972-73	570.88	468.00	531.70	312.10	683.70	462.79
5. 1973-74	533.36	454.00	482.90	311.10	669.80	443.30
6. 1974-75	558.59	461.30	442.90	299.20	638.60	445.50
7. 1975-76	573.64	479.30	496.00	329.10	702.80	471.72
<u>At Current Prices</u>						
1. 1968-69	517.20	441.80	440.10	339.30	597.60	436.30
2. 1970-71	581.40	492.30	499.10	363.30	681.40	483.80
3. 1971-72	567.30	500.70	467.50	392.30	641.30	489.10
4. 1972-73	733.50	617.50	669.50	443.50	806.80	604.00
5. 1973-74	793.00	720.60	722.80	504.30	966.90	676.00
6. 1974-75	931.10	815.40	691.50	579.60	1121.40	775.30
7. 1975-76	901.00	785.80	711.50	560.40	1061.40	750.50
8. 1976-77	967.10	844.20	818.60	589.20	1092.70	801.80

and industrially. The remaining six districts, which are entirely amidst hills, are away from the main stream of development due conditions inhibiting development of agriculture, industries and transport. What pushes these districts above many others in terms of PCI, may appear to be the contribution of hill specific activities, namely forestry and logging. Forestry and logging contributes more than 10 per cent of the total income of the hill region and less than 1 per cent in other regions, while the per capita income from agriculture and animal husbandry activities in the region compares well with the developed western region (Hill Rs.300, Western Rs.303 in 1968-69 at current prices). The corresponding figures of forestry and logging were Rs.86 and Rs.3 only for the Hill and Western regions. However, as a considerable part of income from forestry and logging is transferred out of the Hill region, the PCI of this regions does not give an idea of the average income level of the people. The problems in matching of the PCI level and the notion of development or backwardness between the Hill and other regions however still remains to be explored. It would, for instance, be interesting to examine as to how the per capita income from agricultural sector in the Hill region was almost at par with that of the Western region, in spite of marked differences in agricultural technology and cropping pattern. The PCI of the Hill region gets inflated also due to relatively high proportion of administrative population and a very low density of population per unit of area.

Second, the PCI levels of Bundelkhand and Central regions are relatively close to each other. However, for the years 1971-72 onwards, the PCI estimates of Bundelkhand are lower than those of Central Region when considered at 1970-71 prices and comparatively higher at current prices. This implies changes in the inter-regional price relatives. Lastly, while a regional income estimate is a powerful indicator of the level of development, its usefulness in an analysis of inter-regional disparities is limited if looked upon in isolation of the regional characteristics. In this context mention may be made of certain characteristics of Bundelkhand and Hill regions, especially the density of population extent of irrigation and cropping intensity and relative size of manufacturing activity, which clearly distinguish them from others. More typical characteristics of the Hill region is population density, share of land under agriculture in reporting area proportion of economically active population, and proportion of the administrative population. Some of the regional characteristics are show in Table 4.

The estimates presented above show that the inter-regional differences in the levels of PCI prevailed throughout the reference period as they were in the initial year. Table 5 shows that the total income growth rate (26) ^{annual} in/percentage terms was highest (4.98) for the Hill region, followed by Western (4.82), Bundelkhand (4.19), Central (3.54), and Eastern (1.76), exhibiting the same hierarchy as in terms of PCI. These

Table 4 : Inter Regional Variations in Terms of
Selected Indicators Relating to Demography
and Sectoral Development

Description	REGION					State
	West- ern	Cent- ral	Bundel- khand	East- ern	Hill ern	
1. Density of population (No. per sq. km., 1971)	381	343	146	387	75	300
2. Worker to population ratio in 1971 (%)	28.78	31.50	31.53	31.42	41.93	31.00
3. Percentage of workers, as per 1971 Census, in						
a) Agricultural and allied activities	71.9	77.4	81.9	83.2	76.9	78.0
b) Manufacturing	9.3	7.4	5.0	6.3	0.5	7.3
4. Average land holding size 1971 (ha.)	1.36	1.10	2.66	0.86	1.07	1.61
5. Proportion of net irri- gated area to net area sown in 1970-71 (%)	56.24	31.66	22.17	40.84	20.08	41.72
6. Proportion of gross irrigated area to gross cropped area in 1970-71 (%)	50.20	27.19	21.19	32.39	15.17	36.04
7. Cropping intensity in 1968-69 (%)	134.16	127.24	108.54	130.09	148.2	129.53
8. Per capita net output in 1968-69 (Rs.)						
a) Cultivation and animal husbandry	303	248	290	218	300	260
b) Forestry and logging	2.82	3.77	3.80	2.72	85.70	6.56
9. Share of income from manufacturing in 1968-69 (%)	8.37	9.18	4.74	8.21	3.58	8.01
10. Number of persons emplo- yed in Public Sector as proportion of population in 1972 (%)	1.48	2.12	2.06	1.26	3.43	1.63

growth rates are mainly guided by the growth of income from agricultural and allied activities. Next important in relation to the differences in growth rates of the regional economies, has been the performance of secondary, sector with annual growth rate ranging from a low of 3.50 per cent per annum in Bundelkhand to 8.52 per cent in Western region. For the Hill region a growth rate of 6.28 per cent weighed a little towards total income growth because of a very small proportion of income originating from the secondary activities in six out of eight districts of the region; the industrial activities were concentrated in the districts Nainital and Dehradun. In Bundelkhand too the size of manufacturing activity was small as compared with other sectors, and was concentrated in Jhansi district. Also, unlike other regions, the levels and growth rates of income from secondary activities in both Bundelkhand and Hill regions refer mainly be

growth of 'Construction' sector. The Table 6 depicts the sectoral shares in total regional incomes. As regard the tertiary sector, its growth rate varied between 3.52 per cent in the Eastern region and 4.67 per cent per annum in Bundelkhand, next to which was the Hill region with that of 4.17 per cent. The percentage annual growth rates of population lay between 1.91 per cent in Eastern and 2.46 per cent in the Hill region, with same hierarchy among regions as by total income growth. Still, with exception of a marginal reversal between the Hill and Western regions, the hierarchy of regions in terms of PCI

Table 5 : Average Annual Compound Growth Rates of
Regional Incomes, Population and Per Capita
Incomes (1968-76)

Sector/Item	REGION					State
	West- ern	Cent- ral	Bundel- khand	East- ern	(%)	
1. Agriculture and Allied	4.45	2.32	4.36	0.71	5.04	2.99
2. Primary	4.44	2.71	4.34	0.69	5.07	3.02
3. Manufacturing	8.52	6.02	1.56	2.85	6.31	6.18
4. Secondary	7.32	5.83	3.50	3.62	6.28	5.95
5. Tertiary	3.99	3.90	4.67	3.52	4.17	3.93
6. All Sectors	4.82	3.54	4.19	1.76	4.98	3.69
7. Population	2.11	1.96	2.17	1.91	2.46	2.03
8. Per Capita Income (PCI)	2.52	1.55	1.97	-0.96	2.45	1.59

growth rate remained the same as in terms of total income growth rate. The PCI growth rates in the Western region was the highest (2.52%), followed by Hill (2.45%), Bundelkhand (1.97%), Central (1.55%) and Eastern (-0.96%).

It would be worth-while to put together the main observations emerging from the above discussions. First, there might appear to be some conflict between the hierarchy of the regions in terms of per capita income level and the officially recognised backward regions, particularly the Hill and Bundelkhand. It seems that the backwardness of these regions, though they have higher per capita income levels as compared to the

Table 6 : Sectoral Shares in Total Regional Incomes

(%)

Description	REGION					State					
	Western	Central	Bundel-	Eastern	Hill						
	khand										
<u>A - Based on estimates at 1970-71 prices</u>											
1. Agriculture and Allied											
1968-69	56.42	55.75	66.57	63.78	63.78	59.42					
1975-76	55.45	53.46	68.57	62.64	65.30	58.21					
2. Primary											
1968-69	56.48	55.75	66.69	64.49	63.89	59.67					
1975-76	55.45	55.22	68.57	62.05	65.36	58.53					
3. Manufacturing											
1968-69	9.31	9.71	5.12	8.87	3.28	8.68					
1975-76	12.51	10.98	4.25	10.01	4.45	10.59					
4. Construction											
1968-69	7.01	4.32	4.52	3.63	7.32	5.42					
1975-76	6.68	4.30	4.41	3.89	6.87	5.39					
5. Secondary											
1968-69	16.32	14.03	9.64	12.50	10.60	14.10					
1975-76	19.19	15.28	8.66	13.90	11.32	15.98					
6. Tertiary											
1968-69	27.20	30.22	23.66	23.01	25.51	26.23					
1975-76	25.36	29.50	22.77	24.05	23.32	25.49					
<u>B - Based on Estimates at Current Prices</u>											
1. Primary											
1968-69	59.31	57.11	67.27	65.91	64.75	61.56					
1975-76	51.74	53.73	61.63	59.88	60.71	55.23					
1976-77	50.87	50.73	62.60	57.35	55.91	53.64					
2. Secondary											
1968-69	14.53	13.07	8.91	11.47	10.26	12.84					
1975-76	18.93	14.36	9.65	13.18	11.73	15.59					
1976-77	17.97	13.71	8.92	13.41	13.68	15.20					
3. Tertiary											
1968-69	26.16	29.82	23.82	22.62	24.99	25.60					
1975-76	29.33	32.91	28.72	26.94	27.56	29.18					
1976-77	31.16	34.95	28.08	29.24	30.41	31.16					

state as a whole, arises from the development constraints on account of physical resource conditions and the quality of life which is not well reflected by the per capita income level. Second, the hierarchy of regions by PCI level comes out to be similar to that by total income as well as by per capita income growth rates. It implies that income growth rates are inter-alia determined by the initial income levels. Third, the total income growth rate were mainly guided by agriculture and allied activities, for this sectors contributes a major part of total income in each region. The agriculture and allied sector is almost entirely represented by cultivation and animal husbandry activities. Fourth, in the context the State's economic development, the development of agriculture in Western, Eastern and Central regions is especially importance since these regions cover more than 85 per cent of State's agricultural land. These three regions also represent about 91 per cent of the State's population, including the shares of Western and Eastern regions of over 35 per cent and about 38 per cent respectively. And fifth, a low growth of 1.76 per cent per annum in income of Eastern region (State 3.69%), resulting into a negative growth in its capita income, has pulled down the growth rate of the State's economy.

District Income Levels and Growth Rates

Among the 51 district units, the total income level in the base year 1968-69 at 1970-71 prices varied from about Rs.21 crores of Tehri (including Uttar Kashi) to Rs.199 crores, about

five times the former, of Meerut. A grouping of districts according to total income levels in the base year 1968-69 (at 1970-71 prices) shows that among the top 10 district 5 belong to Western region and 1 and 4 to Central and Bundelkhand regions, with average income of Rs.123 crores per district. The proportion of average income per district between the groups of top 10 and bottom 10 districts comes to 3.15 : 1, and that between the top 15 districts, all of which belong to the above three regions, and the bottom 15 districts to 2.64 : 1. Though density of population varies considerably across the district, the districts with relatively high levels of total income are, by and large, those which also have higher per capita incomes (PCI). Thus generally, the size of population does not appear to be as important a factor in the inter-district differences in PCI levels as presumably are the physical conditions of development. By the same token, as we would see later, although population growth rates vary across regions and districts, the inter-area hierarchy in terms of total income growth rates remain by and large the same as in terms of PCI growth rates, and more clearly by PCI levels. It would be relevant to classify the districts by different PCI groups, and examine if there exists a significant relationship between the PCI levels and income growth rates.

According to the Table 7, Azamgarh, Ghazipur, Jaunpur and Pratapgarh, all of the Eastern region constitute the lowest

Table 7 : Districts Falling in Different PCI Groups in the Base Year
1968-69

Sl. No.	PCI groups at 1970-71 prices (Rs.)	Western	Central	Bundelkhand	Eastern	Hill
1.	Below 250				Azamgarh	
2.	250 - 300				Ghazipur, Jaunpur, Pratapgarh	
3.	300 - 350	Budau	Unnao		Ballia Basti Deoria Faizabad Sultanpur	
4.	350 - 400	Etah Farrukhabad	Barabanki Fatehpur Hardoi Rae Bareli Sitapur	Allahabad Bahraich Gonda Gorakhpur	Almora & Pithoragarh Tehri & Uttar Kashi	
5.	400 - 500	Aligarh, Bulan- dshahr, Etawah Mainpuri, Mora- dabad	Kheri Jalaun, Jhansi & Lalitpur	Banda, Ham- irpur, Varanasi	Mirzapur	
6.	500 - 600	Agra, Bareilly Bijnor, Math- ura, Muzaffar- nagar, Rampur, Shahjahanpur	Lucknow			
7.	600 and above	Meerut, Pili- bhit, Saharan- pur	Kanpur		Garhwal & Chamoli, Dehra Dun, Naini Tal	

group of 4 in the State. Along with 12 districts (5, 1, 4 and 2 from Western, Central, Bundelkhand and Eastern regions), the PCI levels of Central, Bundelkhand and the State were in the PCI group Rs.400-500 (at 1970-71) prices in the base year. The number of districts distinctly below the State's PCI level was 24 (3, 6, 13, and 2 of Western, Central, Eastern and Hill regions) and that of districts above the PCI group was 15 (10, 2 and 3 from Western, Central and Hill regions respectively). Whereas the inter-district hierarchy in PCI levels remained by and large unaltered during the reference period, a shift in the position of districts on the PCI scale is visible between the year 1968-69 and 1975-76 (Table 8). In the Western region the number of districts below the PCI Rs.400 was 3 in 1968-69 and 1 in 1975-76, while the number in PCI range Rs.500 and above, increased from 10 to 12, similar shift can be seen among districts of Central, Bundelkhand and Hill regions, but in the Eastern region downward shifts in districts positions, particularly below the PCI level of Rs.400. Notably, while PCI levels have grown in case of majority of districts during the reference period, that of most of the Eastern districts either decreased or stagnated. The only four districts of Eastern region showing shifts to higher PCI groups are Allahabad, Azamgarh, Ghazipur and Varanasi. The positions of Jaunpur and Gorakhpur lay in the groups Rs.250-300 and Rs.350-400, and of Deoria, Pratapgarh and Sultanpur in Rs.300-350 in both the terminal years. Of the six eastern districts showing a downward shifts from PCI groups

Rs.300-350 to Rs.250-300 are Gorakhpur, Jaunpur, Pratapgarh and Ghazipur and from the PCI group Rs.350-400 to Rs.300-350 are Bahraich and Gonda. It is interesting to note that each of these 11 eastern districts exhibiting a downward trend in PCI, had a PCI level below Rs.400, while 8 of them had the level below Rs.350. There is thus an indication that the initial level of per capita income interacts with income growth rates in case of the district economics, which has been further examined as below.

Table 8 : Distribution of Districts by PCI groups in the years 1968-69 and 1975-76
(Number)

PCI Groups at 1970-71 Prices (Rs.)	Year 1968-69					Year 1975-76					
	Region*					S	Region*				
	W	C	B	E	H		W	C	B	E	H
1. Below 250				1		1					
2. 250 - 300				3		3			6		6
3. 300 - 350	1	1		5		7			5		5
4. 350 - 400	2	5		4	2	13		1	6		1
5. 400 - 500	5	1	4	2		12		5	1	2	3
6. 500 - 600	7	1				8		7	2		9
7. 600 and above	3	1				3	7	5	2		4
TOTAL			18	9	4	15	5	51		18	9
							4	15	5		51

* W : Western; C : Central; B : Bundelkhand;
E : Eastern; H : Hill

The relationship of the initial per capita income level (FCI) and income growth rates across the districts appears to be positive though somewhat weak and discontinuous.

Table 9 shows a distribution of districts by FCI groups and total income growth rates, and Table 10, the distribution by FCI groups and FCI growth rates. There are quite a few exceptions where districts with relatively low FCI levels exhibit growth rates much above the over-all average, such as Budaun, Allahabad, Azamgarh, Almora and Rithoragarh and 'Tehri and Uttar Kashi' on the one hand and districts with high FCI levels and relatively low growth rates, e.g. Mathura (Annexure 10) on the other. From the above tables two blocks of districts may be identified : one with districts with FCI below Rs.400, total income growth rate below 3 per cent and/or FCI growth rate below per cent, and the other with FCI of Rs.350 or more, total income growth rate of 3 per cent or more and/or FCI growth rate of 1 per cent or more. Considering these two blocks of districts as individual units of observation the relationship between the initial FCI level and income growth rates appears to be strongly positive. But within each block the relationship is somewhat weak. This suggest that growth of a small economic sub-unit like district cannot be appropriately explained without referring to externalities. But as the size of the unit increases, the explanatory power of internal factors tends also to increase. In fact, as we

Table 9 : Number of Districts by PCI Classes and Total Income Growth Rates

PCI Classes (Rs.)	Average Annual Compound Growth Rate (%)						(Number)
	Below 1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0 and above	
1. Below 250	-	-	-	1	-	-	1
2. 250 - 300	1	1	1	-	-	-	3
3. 300 - 350	3	1	1		2	-	7
4. 350 - 400	3	2	3	1	1	3	13
5. 400 - 500	-	2	-	4	2	4	12
6. 500 - 600	1	1	-	2	3	1	8
7. 600 - 750	1	-	1	-	1	4	7
TOTAL	9	7	6	8	9	12	51

Table 10 : Number of Districts by PCI Levels and PCI Growth Rates

PCI Growth (Rs.)	PCI Growth Rate % Per Annum							(Number)
	Below 0.25	0.25-0.5	0.5-1.0	1.0-1.5	1.5-2.5	2.5-4.0	4.0 & above	
1. Below 250	-	-	-	-	1	-	-	1
2. 250 - 300	2	-	1	-	-	-	-	3
3. 300 - 350	5	-	-	-	1	-	1	7
4. 350 - 400	5	1	2	1	-	1	3	13
5. 400 - 500	2	-	1	1	2	6	-	12
6. 500 - 600	1	-	-	1	3	2	1	8
7. 600 & above	2	-	-	1	1	1	2	7
TOTAL	17	1	4	4	3	10	7	51

move from the national level to state level and further down to region and districts, the degree of openness increases and it tends to influence the internal mechanism of growth or the inertia of stagnation.

CHAPTER IV

REGIONAL AND SECTORAL EFFECTS ON INCOME LEVELS

It is seen that the per capita income levels vary widely across regions and districts of Uttar Pradesh. The growth rates of the regional and district economies were found to be positively associated with the initial per capita income levels. The inter-regional disparities thereby increased considerably during the reference period. Also, on the other hand, the State's economic growth was far from being satisfactory. The situation calls for greater attention to development of backward areas, making it necessary to identify factors leading to differences in performances of regional economies. These factors may be classified into two groups. In the first group are the factors rooted in geographical, demographic, cultural and socio-economic characteristics, that are more or less given over a period of time. Related with these, yet important is the other group of factors which count on the peoples' capabilities and choices and availability of worthwhile options of investment and are reflected by economic profile and structure. They may be referred to in terms of sectoral incomes and productivity levels. Measurement of the influence of these two groups of factors in per capita income differences among regions and districts, and identification of major factors within each group would be useful for visualising the scope and direction of efforts needed for stimulating the process of economic growth in backward regions.

The present chapter tries to examine as to what extent the inter-district differences in per capita income (PCI) levels have resulted from 'regional' and structural (or sectoral) factors, using a decomposition model described below. The major factors responsible for the inter-regional disparities have been highlighted in the next chapter.

The Decomposition Model

The PCI of an area may be looked upon as product of aggregate productivity per worker (IPW) and proportion of workers to population. The difference of PCI between two areas may be thus decomposed into the corresponding components, referred to here as Productivity Effect (PE) and Dependency Effect (DE).

Given the worker to population ratios, the difference in IPW may be further decomposed into regional and sectoral components. The IPW of an area is constituted by per worker income levels in different branches of production and the production structure. Among areas, there are marked differences in the level of productivity of a particular activity group, which may be attributed to regional characteristics. The extent to which the differences in IPW are explained by regional characteristics has been referred to as Regional Effect (RE). The other major component of the differences in IPW, which results from differences in sectoral weights in the economy, may be termed as Sectoral Effect (SE). The sectoral weights have been defined here in terms of the proportions of workers.

The model is an additive one and runs into two stages. In the first stage the district-wise PCI differences may be decomposed into DE and PE components and in the second stage the IPW differences were analysed in terms of the RE and SE components. The additive formulations adopted in the present context also give out a residual component - interaction effect - in each stage. In the first stage of decomposition, the interaction component indicates how far the dependency between productivity and worker to population ratio influences the PCI levels. Similarly, the balancing component arising in the second stage of decomposition would show the extent of differences in IPW due to interaction between the Regional Effect and Sectoral Effect. The two interaction components have been denoted by IDP and IRS respectively.

Lastly, the exercise draws upon deviations of certain values and ratios of one region or area from another. But then, in order to make the results of decomposition comparable among the areas (districts), it is necessary to work out the deviations from a given set of the values and ratios, desirably those for the State as a whole. An averaging of the district-wise components of decomposition would also be necessary for comparability of the results among groups of districts, such as between regions and the State as a whole. The formulations are as follows :

Let

y Per capita income, i.e. PCI
 d Population dependency (ratio of population to workers based on 1971 Census)
 p per workers income, i.e. productivity (IPW)
 N Number of workers
 DE Dependency effect on per capita income level
 PE Productivity (aggregate) effect on per capita income level
 IDP Component of interaction between dependency and productivity in determination of per capita income level
 RE Regional effect on productivity levels
 SE Sectoral effects; i.e. the effect of activity mix, on aggregate productivity
 IRS Component of interaction between the regional and sectoral effects on productivity
 SUFFIXES i for i^{th} district
 j for j^{th} sector of the economy, representing activity groups

Note : A symbol used without the suffix i stands for specified district groups and that without j corresponds to all the sectors taken together.

For $y_i \neq y$,

$$\begin{aligned}
 \pm y_i \neq y &= (1/di) (\pm p_i \neq p) + p_i (\pm 1/di \neq 1/d) \\
 &\quad + (\pm p_i \neq p) (1/d - 1/di) \quad \dots (1)
 \end{aligned}$$

The three components on the right hand side of equation (1) are defined as Productivity Effect (PE), Dependency Effect (DE) and the Interaction Effect (IDP), respectively,

Second, for $p_i \geq p$,

$$\begin{aligned} \pm p_i - p &= \sum_j (N_{ij}/N_i) (\pm p_{ij} - p_j) \\ &+ \sum_j p_{ij} (\pm N_{ij}/N_i - N_j/N) \\ &+ \sum_j (\pm p_{ij} - p_j) (N_j/N - N_{ij}/N_i) \quad \dots (2) \end{aligned}$$

The three components on the right hand side of equation (2), in that order, are defined as the Regions Effect (RE), Sectoral Effect (SE), and the Interaction Effect (IRS). Here it is assumed that the productivity levels in particular activity groups vary across areas primarily because of given regional characteristics like endowmental conditions and the state of infrastructure.

For groups of districts comprising the regions and the State, the results of above decomposition have been expressed as magnitudes of various components constituting the mean deviations of districti-wise values of PCI and IPW from the corresponding values for the state. Rewriting the expressions (1) and (2), we have

$$|y_i - y| = PE + DE + IDE \quad \dots (1)$$

$$|p_i - p| = RE + SE + IRS \quad \dots (2)$$

For aggregation of the results for a group of districts, K in number, the following procedure has been used.

$$\begin{aligned} (1/k) \sum |y_i - y| &= (1/k) \sum PE + (1/k) \sum DE \\ &+ (1/k) \sum IDE \quad \dots (3) \end{aligned}$$

$$\begin{aligned} (1/k) \sum |p_i - p| &= (1/k) \sum RE + (1/k) \sum SE \\ &+ (1/k) \sum IRS \quad \dots (4) \end{aligned}$$

The summations in the above two expressions are over the district constituting the group. Lastly, the exercise is based upon FCI and IPW levels at constant prices (of 1970-71) with a view to filtering out the effects of changes in inter-district price relatives, if any, in the analysis.

Dependency and Productivity Effects in Inter-District Differences in Per Capita Income (FCI)

This decomposition exercise was done only for the year 1972-73 which is the mid-year of the reference period, rather than at different points of time because, by and large, the hierarchy of districts in terms of FCI have remained unaltered over the period, and, owing to data limitations, the worker-population ratios were assured to be given as per 1971 population census. For districts with FCI above the State's average, the mean deviation of the district FCI's from the State's FCI was Rs.158; the corresponding figures for the regional groups of districts in this category were : Rs.154, Rs.150, Rs.68 and Rs.242 for Eastern, Central, Bundelkhand and Hill regions respectively. The mean deviation of FCI over the remaining districts (with FCI lower than that of the State) was Rs.124, while the regional averages were Rs.37, Rs.102 and Rs.142 for Western, Central and Eastern regions. Following are the results of the decomposition.

The Table 11 shows that for districts with FCI greater than that of the State, 4.41 per cent of the average FCI deviation in the year 1972-73 was constituted by Depednency Effect (DE), as

Table 11 : Dependency and Productivity Effects on PCI Across Districts

Region/State	Mean deviation of PCI	D.E.	P.E.	I.D.F.
Western	115.45	-26.02	136.27	5.20
Central	118.45	-13.60	132.43	-0.38
Bundelkhand	67.69	6.04	60.28	1.37
Eastern	142.12	-2.64	123.44	21.32
Hill	242.19	154.76	69.53	17.90
STATE				
a) Districts with PCI above State's average	157.79 (100.00)	6.96 (4.41)	141.76 (89.84)	9.07 (5.75)
b) Districts with PCI below State's average	123.78 (100.00)	0.02 (0.02)	111.80 (90.32)	11.96 (9.66)
c) All districts	132.50 (100.00)	3.29 (2.48)	119.31 (90.05)	9.90 (7.47)

Note : 1. PCI, DE, PE and IDF stand for Per Capita Income, Dependency Effect, Productivity Effect and Interaction Effect.

2. The figures in parentheses denote percentages to corresponding mean deviations of PCI.

against 89.84 per cent by Productivity Effect (PE). The respective percentages for the remaining districts, taken together, were 0.02 and 90.32, and those for all the districts 2.48 and 90.05 respectively with the interaction component (all districts) 7.47 per cent. On the average, thus, 90 per cent of the variations in PCI across districts was explained by variations in IRW, while only a little over 2 per cent by population dependency ratio. The results aggregated for

regions are however different from one another. Notably, the DE component is negative for district groups of Western, Central and Eastern regions, positive for Bundelkhand and exceptionally high for the Hill region. Also there is considerable variation in the size of the interaction component. It may be recalled here that the model assumes a positive relationship between worker-population ratio (inverse of population dependency ratio) and PCI which is supported by the positive values of DE. But we also find that in case of 15 districts (including 11 from Western region) with PCI above the State's average, the worker-population ratio is relatively low while in an equal number (including 14 from Central and Eastern) having comparatively low PCI, the ratio is higher than that of the State. It suggests that supply of labour in areas with low income level, tends to rise. However, the worker-population ratio was found to be exceptionally high in the Hill region in spite of the PCI being the highest. This situation appears to be mainly because of out-migration of male worker belonging to the hill areas and high degree of female participation in economic activities.

It would be worthwhile in the above context to also look at the relative positions of different regions vis-a-vis the State, in terms of PCI and IPW. Table 12 shows that excepting the Hill, there is a strong positive relationship between PCI and IPW across the regions, giving support to the

results of decomposition. Interestingly, the highest PCI level in the Hill region was reached quite a bit due to a high worker's participation rate. It is for this reason that the DE component for the Hill district groups comes out to be exceptionally high. Lastly, the interaction component (IDP), varying in directions and magnitudes across regions, exhibit the nature and significance of relationship between PE and DE as different from one region to another.

Table 12 : Indices of Per Capita Income (PCI) and Income Per Worker (IPW) for Regions (State=100)

Region/State	1968-69		1972-73		1975-76	
	PCI	IPW	PCI	IPW	PCI	IPW
Western	177	126	123	133	122	131
Central	102	100	101	99	101	101
Bundelkhand	104	102	115	112	105	103
Eastern	78	77	70	69	72	71
Hill	140	103	140	109	149	110
State (Index)	100	100	100	100	100	100
Rs. at 1970-71 Prices	430	1390	463	1496	472	1525

If one looks at the decomposition results for individual districts (Annexure 6), quite a few of such questions regarding the inter-relationship between per capita income, per worker productivity and population dependency would arise. However, of direct relevance here is that the variation in productivity

level was the main source of inter-district difference in PCI. The 'Regional' and 'Sectoral' effects on the productivity levels across districts are examined below.

Regional and Sectoral Effects in Inter-District Differences in Total Income Per Worker (IPW)

The exercise of decomposition of IPW into Regional and Sectoral effects (RE and SE) was carried separately for the for the years 1968-69, 1972-73 and 1979-76. It may be mentioned that the number of districts with IPW higher than that of the state however declined from 24 in 1968-69 to 23 in 1972-73 and 20 in 1975-76. The district-wise results of the decomposition are presented in Annexures 7, 8 and 9 for the above mentioned years in that order. The inter-district hierarchy in terms of IPW was similar, though more pronounced, compared with that in terms of PCI. The mean deviations of IPW of districts from that of the State were Rs.431, Rs.562 and Rs.410 in 1968-69, 1972-73 and 1975-76 for district with IPW greater than the state's average. The corresponding figures for the remaining group of districts were Rs.311, Rs.387 and Rs.469, and those for all the district taken together Rs.367, Rs.466 and Rs.446. The Table 13 gives the decomposition results aggregated for the regions and the State for 1968-69, 1972-73 and 1975-76. Taking an overall view of the results it may be observed that the Regional Effect (RE) weighed twice the Sectoral Effect (SE) in the productivity (IPW)

Table 13 : Regional and Sectoral Effects on IPW
Across Districts

(Rs. per district)

Region/State/Year	Mean Deviation of IPW	R.E.	S.E.	I.R.S.
<u>Western</u>				
1968-69	394.09	284.15	91.74	18.20
1972-73	477.56	337.84	109.33	30.39
1975-76	340.16	191.03	126.11	23.02
<u>Central</u>				
1968-69	327.51	157.60	189.55	-19.64
1972-73	446.03	202.38	272.45	-28.80
1975-76	462.65	226.98	245.34	-9.67
<u>Bundelkhand</u>				
1968-69	134.06	100.69	45.48	-12.11
1972-73	197.31	249.27	-9.56	-42.40
1975-76	139.83	39.08	92.54	8.21
<u>Eastern</u>				
1968-69	327.31	199.66	118.44	9.21
1972-73	479.85	328.00	143.03	8.82
1975-76	577.17	418.22	150.42	8.53
<u>Hill</u>				
1968-69	649.31	411.45	96.61	141.25
1972-73	632.08	349.57	111.50	171.01
1975-76	646.96	373.57	120.79	152.60
<u>STATE</u>				
1968-69	367.32 (100.00)	235.06 (63.99)	113.70 (30.96)	18.56 (5.05)
1972-73	465.84 (100.00)	305.24 (65.53)	138.92 (29.82)	21.68 (4.65)
1975-76	445.85 (100.00)	270.17 (60.60)	151.14 (33.90)	24.54 (5.50)

Note : 1. IPW, RE, S^E and IRS stand for total income per worker, Regional Effect, Sectoral Effect and Interaction Effect.

2. The figures in parentheses denote percentages to corresponding mean deviations of IPW.

differences across the districts. These two components taken together explain 95 per cent of the variation in IFW as against interaction component (IRS) only 5 per cent. Certain qualitative differences are also found among the regional aggregates of RE and SE. For four of the regions, the SE component was smaller while it was greater than RE in case of Central region. The weight of RE was the highest and that of SE the smallest for the Hill region. The weights of IRS are markedly different among regions and exceptionally high for the Hill region. The results for Bundelkhand are not quite clear because of some distortion due to wild fluctuations in sectoral income levels of the districts, which are only 4 in number. Over the period, we find a marginal increase in the proportion of SE particularly for districts of Western and Hill regions, a similar but subdued trend taking all the districts together and a reverse trend across district of Eastern region. As regards the interaction component (IRS), its magnitude came to be quite small, taking all the districts together, though it varied considerably among district groups constituting the regions. The magnitudes of IRS do not exhibit any meaningful trend, but they indicate how different are the interactions between RE and SE. The system of inter-dependencies between the regional and structural effects needs however be studied separately.

The main findings of the decomposition exercises may now be put together, as follows. First, the inter-district differences in per capita income (PCI) levels were mainly due to the difference in average productivity levels (total income per worker, IPW) to the extent of 90 per cent. The analysis also indicated that, generally, there was a negative relationship between PCI level and worker's participation rate except in case of the Hill region where a high proportion of workers raised its PCI level above that of the most developed Western region in spite of a lower IPW. Second, the inter-district differences in IPW in the State appeared to be mainly due to region specific conditions of development. The sectoral structure of activities also contributed to the variations in IPW, but with a weight about half of that of the Regional Effect. With an explanatory power of 95 per cent accounted for by these two groups of factors, the dependence of sectoral development on regional characteristics caused around 5 per cent variation in IPW. Third, at regional levels, the weights assumed by these components indicate that differences in the levels of development between Western region and the State as a whole, and those between the State and Eastern region, were mainly on account of regional characteristics. The regional effect was found to be the most pronounced for the Hill districts. In case of Central region, however, the inter-district differences in IPW were more due to sectoral effect. And, fourth, as follows from the above,

which the Eastern and Central regions, represent about 38 per cent and 18 per cent of the State's population and are the lowest FCI regions, need special attention in the context of the State's economic development. It may be mentioned here that in the recent past the government has been specially concerned about the development of so called 'special problem areas' namely the Eastern, Bundelkhand and Hill regions. The situation calls for more serious efforts for development of the Central region as well.

CHAPTER V

FACTORS ASSOCIATED WITH STATE'S ECONOMIC GROWTH AND REGIONAL INCOME DISPARITIES

At an aggregative level it is possible to visualise an inter-relationship among structure of economic activities technological progress and performance of an economy over a period of time. Between regions, these inter-relationships are likely to differ on account of 'regional' factors (endowmental, socio-economic and cultural) leading to sectoral imbalances and inter-regional disparities, as is quite evident in the case of Uttar Pradesh. Among the five regions of the State, contribution to the State's total income by the Western region was over 40 per cent, followed by Eastern (30%), Central (18%), Bundelkhand (5%) and Hill (7%), varying marginally during the period 1968-76. The per capita income (PCI) level was the highest in Hill region, followed by Western, Bundelkhand, Central and Eastern in that order (Table 14). Normally the PCI level is positively associated with the proportion of income from non-agricultural activities, particularly the manufacturing. The table 14 shows that the percentage contribution of manufacturing sector to total income was highest in the Western region, followed by Central, Eastern, Bundelkhand and Hill regions. Thus the regional hierarchy in terms of PCI is entirely different from that in terms of the proportion of income from manufacturing sector.

It establishes that, on account of regional characteristics, the sectoral patterns of the regional economies are different. A look out for economic growth and reduction in inter-regional disparities involves a study of the size and characteristics of the regional economies. The following section therefore

Table-14 : Regional Per Capita Income (PCI) Levels and Patterns of Sectoral Development.

Region/ State/ Year	PCI at 1970- 71 prices (Rs.)	Regional Share in State's Income(%)	Sector*						Total 3+7+8	
			A	PRI	M	C	SEC	TER		
0	1	2	3	4	5	6	7	8	9	
Western										
1968-69	502	41.20	56.4	56.5	9.3	7.0	16.3	27.2	100	
1975-76	574	43.02	55.4	55.4	12.5	6.7	19.2	25.4	100	
Central										
1968-69	439	18.23	55.8	55.8	9.7	4.3	14.0	30.2	100	
1975-76	479	18.03	55.5	55.2	11.0	4.3	15.3	29.5	100	
Bundelkhand										
1968-69	448	5.03	66.6	66.7	5.1	4.5	9.6	23.7	100	
1975-76	496	5.12	68.6	68.6	4.2	4.4	8.6	22.8	100	
Eastern										
1968-69	336	29.52	63.8	64.5	8.9	3.6	12.5	23.0	100	
1975-76	342	27.20	64.0	64.1	10.0	3.9	13.9	24.0	100	
Hill										
1968-69	603	6.02	63.8	63.9	3.3	7.3	10.6	25.5	100	
1975-76	703	6.63	65.3	65.4	4.4	6.9	11.3	23.3	100	
State										
1968-69	430	100.00	59.4	59.7	8.7	5.4	14.1	26.2	100	
1975-76	472	100.00	58.2	58.5	10.6	5.4	16.0	25.5	100	

* A : Agriculture & allied; PRI : Primary; M : Manufacturing; C : Construction, SEC : Secondary; and T : Tertiary

examines the regional contributions to the State's income levels and growth rates during the reference period. The subsequent section highlights, the factors found to explain the prevalence of inter-region disparities in PCI.

Regional Contributions to Levels and Growth Rate of State's Income

Table-15 shows that the percentage contribution of the Western region to income from major sector of the economy has been the highest and showed an increasing trend over the period. This region produced 41 per cent of the State's income from agriculture and allied activities against 29 per cent by the most populated Eastern region, a low of 6 per cent and little over 7 per cent by Bundelkhand and Hill regions respectively in the year 1975-76. In that year the percentage in respect of manufacturing sector was 52.6 for Western, the highest, as against 23.7, 17.2, 4.7 and 2.8 for Eastern, Central, Hill and Bundelkhand respectively. To examine as to how have the regions and the major sectors of the regional and State economies have contributed to the State's economic growth rate, the logic runs like this.

If Y denotes the total income level, suffix i the i^{th} region and j the j^{th} sector, then

$$y_i = \sum_j y_{ij} \text{ and } \Delta y_i = \sum_j \Delta y_{ij}, \text{ so that}$$

$$\Delta y_i/y_i = \sum_j (\Delta y_{ij}/y_{ij}) (y_{ij}/y_i) \dots \dots \quad (1)$$

that

$$y = \sum_i y_i = \sum_j y_i \text{ and } \Delta y = \sum_i \Delta y_i = \sum_j \Delta y_j, \text{ so}$$

$$\Delta y/y = \sum_i (\Delta y_i/y) = \sum_j (\Delta y_j/y), \text{ therefore}$$

$$\Delta y/y = \sum_i (\Delta y_i/y_i) (y_i/y) \dots \dots \quad (2)$$

$$\Delta y/y = \sum_j (\Delta y_j/y_j) (y_j/y) \dots \dots \quad (3)$$

The equation (1) shows the additive components of growth rate of total income of the i^{th} region, in terms of sectoral

growth rates of the region and the proportions of the regional income contributed by individual sectors. Equation (2) shows the growth rate of the state's economy expressed

Table-15 : Regional Contributions to Sectoral Incomes of the State

Region/ State/ Year	Regional Contributions to the State's Economy						
	All Sectors	A	PRI	M	C	SEC	TER
0	1	2	3	4	5	6	7
Western							
1968-69	41.20	39.1	39.0	44.2	53.3	47.7	42.7
1975-76	43.02	41.0	40.8	50.8	53.3	51.6	42.8
Central							
1968-69	18.23	17.1	17.0	20.4	14.6	18.1	21.0
1975-76	18.03	16.6	17.0	18.7	14.4	17.2	20.9
Bundelkhand							
1968-69	5.03	5.6	5.6	3.0	4.2	3.5	4.5
1975-76	5.12	6.0	6.0	2.0	4.2	2.8	4.6
Eastern							
1968-69	29.52	31.7	31.9	30.1	19.8	23.2	25.9
1975-76	27.20	29.0	28.8	25.7	19.6	23.7	25.6
Hill							
1968-69	6.02	6.5	6.5	2.3	8.1	4.5	5.9
1975-76	6.63	7.4	7.4	2.8	8.5	4.7	6.1
State	100.00	100.00	100.00	100.00	100.00	100.00	100.00

in terms of regional growth rates and regional shares in the State's income and equation (3) gives the break-ups the State's income growth rate in terms of the sectoral growth rates and sectoral income shares. The model is additive and it assumes constancy of regional and sectoral weights. Over the reference period however the regional and sectoral weights have in fact changed only marginally. Finally, the growth rates which have been sought to be decomposed are the average annual compound growth rates taking into account all observations at

different points of time during a year and are thus likely to be different from those based on end-points only. As a result the two sides of the expression (2) or (3) may not balance perfectly. However, so long the difference between the left hand side and the right hand side of the result is marginal the purpose would be served. In the present case the balancing factor was found to be ^{not} more than 0.78 per cent of the sum total for either of the two expressions.

The table-16 shows that contribution of the Western region alone in the growth rate of the State's economy was over 54 per cent, followed by Central region at about 18 per cent and Eastern region only 14 per cent in spite of its biggest size in terms of population. The primary activities which contributed over 64 per cent of the income of Eastern region contributed only about 26 per cent to the total income growth rate of the region. Generally, a region with a higher proportion of income from manufacturing sector had made greater contribution to the state's income growth rate. Within a region, the percentage contribution of primary sector in total income growth rate level was generally lower than its contribution to the total income level. But the percentage contribution of the secondary sector in the total income growth rate was higher than its contribution to the total income level. Exceptions may however be seen in case of the Hill region where the contribution of primary sector was more in the growth rate than its contribution to the total income level. Also in Bundelkhand an extra low growth of manufacturing activities made the contribution of secondary

sector in the growth rate lower than its contribution to the income level in proportional terms.

Table 16 : Regional and Sectoral Contributions to Economic Growth Rates (1968-76)

Region/ State	Total Income Contribu- tion Growth Rate	Regional Sectoral Contributions within regions and the State	Sectoral Contributions within regions and the State			Total
			PRI	SEC	TER	
0	1	2	3	4	5	6
Western	4.82	54.24	52.38	24.75	22.67	100.00
Central	3.54	17.62	43.08	23.32	33.60	100.00
Bundelkhand	4.19	5.76	66.74	7.78	25.48	100.00
Eastern	1.76	14.19	25.51	25.95	48.54	100.00
Hill	4.98	8.19	66.41	13.65	19.94	100.00
State	3.69	100.00	50.03	22.16	27.81	100.00

Note : The Column 1 shows the average annual compound growth rates of total income, taking into account all observations for different years during the reference period. Col.2 shows the regional contributions to the growth rate of the State's economy, found to be 3.69 per cent per annum. Col.6, the total of Cols.3,4 and 5, corresponds to the Col.1.

Factors leading to Inter-Regional Disparities

The regional income estimates for different years during the reference period show that inter-regional differences in PCI have increased. Generally, the regions with a high PCI level registered relatively higher economic growth rates. Among areas, the differences in growth rates of PCI may be associated with various demographic, and socio-economic characteristics, towards identification of factors which have cause the inter-regional disparities to persist. A few observations in

this regard are presented below, based on an inter-district analysis. First, the PCI growth rate had a very significant correlation coefficient (0.95) with the growth rate of total income. The population growth rates of regions with relatively high PCI level were also comparatively higher. Thus, high density of population, which has often been associated with backwardness of a region, does not explain the existing inter-regional differences in PCI levels and growth rates. Second, areas with a lower proportion of workers to population had generally a higher PCI growth rate. It suggests that in relatively backward areas with low levels of technology and productivity, the supply of labour force tends to increase due to the pressure on poor households to supplement their incomes. Capital formation in such areas is likely to be small resulting into slow economic growth or stagnation. Third, the PCI growth rate was found to be negatively associated with the shares of primary sector (or almost equally well with those of agricultural sector) in total income but had a strong positive relationship with growth rates of that sector. In other words, given the economic structure, development of agriculture has been crucial for any perceptible growth of PCI. But in that process, non-agricultural activities grew relatively faster. Fourth, growth rate of PCI was found to be positively associated with the percentage contribution and growth rate of income from secondary sector and proportion of urban population, both of which support each other. It may also be mentioned that the association between growth rate of PCI and that of 'secondary' sector came to be stronger than that between the former and the

growth rate of tertiary sector even though the contribution of 'tertiary' sector was over twice that of 'secondary' sector in the State's total income. As the same time association between urbanisation and growth of tertiary sector was stronger than that between the former and the growth rate of secondary sector. Thus, both absolute and relative growth rates of secondary sector are positively related with PCI growth rate, while the tertiary sector appears to be guided by the extent of urbanisation. Moreover, though the weight of tertiary sector in the aggregate income level was higher than that of the secondary sector, it is the growth in the latter which was more crucial for growth in PCI. The tables 17 and 18 give evidences to the above observations. The sectoral growth rates and PCI growth rates for the districts are presented in Annexure-10. The districtwise proportions of income by primary, secondary and tertiary sectors are shown in Annexure-11, based on the district income estimates at constant prices of 1970-71, and in Annexure-12 based on the income estimates at current prices.

There are various characteristics other than those considered above, which could be associated directly with growth of individual sectors, among which agriculture (cultivation) and manufacturing sectors were especially important in view of the following. Among the three major sector-groups, namely primary, secondary and tertiary, the primary sector compasses agriculture, animal husbandry, forestry and logging, fishing and mining and quarrying. In the state's total income, the percentage contribution of agriculture and animal husbandry, together, lay between

Table 17 : Relationships among Per Capita Income Growth Rate and Selected Indicators of Development Across All the 51 District Observations

INDICATORS	(Correlation Coefficient)								
	INDICATORS								
	Sectoral Shares			Sectoral Growth Rates			Worker to pop. ratio		
	PRI	SEC	TER	PRI	SEC	TER			
1. PCI Growth rate (1968-76)	-0.44	0.46	0.37	0.95	0.30	0.24	0.04	0.31	
2. Sectoral Shares (1968-69)	PRI	1	-0.79	-0.95	-0.31	-0.54	-0.47	0.32	-0.90
	SEC		1	0.57	0.41	0.35	0.46	-0.27	0.56
	TER			1	0.21	0.55	0.40	-0.29	0.93
3. Sectoral Growth Rates (1968-76)	PRI			1	0.10	0.24	0.08	0.16	
	SEC				1	0.37	-0.14	0.57	
	TER					1	-0.36	0.51	
4. Worker to population ratio (1971)							1		-0.26
5. Urban population ratio (1971)								1	

Minimum Significant values of correlation coefficient at 45 d.f. at 5% and 1% levels are 0.2875 and 0.3721 and those at 50 d.f. at the two levels of significance 0.2732 and 0.3541.

Table 18 : Relationships of Per Capita Income Growth Rate with Selected Indicators of Development Across 42 Districts of the Western, Central and Eastern Regions

INDICATORS	(Correlation Coefficient)								
	Sectoral Shares			Sectoral Growth Rates			Worker to pop. ratio		Urban pop. ratio
	PRI	SEC	TER	FRI	SEC	TER			
1. PCI Growth Rate	-0.69	0.64	0.61	0.92	0.47	0.36	-0.59	0.56	
2. Sectoral Shares									
PRI	1	-0.81	-0.95	-0.51	-0.57	-0.50	0.40	-0.90	
SEC		1	0.59	0.58	0.40	0.56	-0.29	0.60	
TER			1	0.40	0.57	0.40	-0.39	0.93	
3. Sectoral Growth Rates									
PRI				1	0.20	0.33	-0.46	0.35	
SEC					1	0.43	-0.20	0.62	
TER						1	-0.13	0.52	
4. Worker to population ratio							1	-0.35	
5. Urban population ratio								1	

Minimum significant values of correlation coefficient at 40 d.f. at 5% and 1% levels are 0.3044 and 0.3932.

56 and 58, against a total of only around 1.4 per cent from forestry and logging and fishing and a very small proportion of about 0.3 per cent from mining and quarrying during the reference period (27), within 'agriculture and animal husbandry' group, the animal husbandry sector contributed 23 per cent of net output (28) and 17 per cent of the gross output (29) in the year 1970-71. It is seen that the relative size of animal husbandry sector was not very small. But, for want of adequate data on production and inputs for regions/districts, it could not be possible to take animal husbandry sector separately for analysis of the inter-regional pattern of development. Within the secondary sector, growth of manufacturing activity is more directly associated with real growth of the economy as compared to growth of construction activity over the short period of time. As regards the tertiary sector, its contribution to total income has been greater than that of manufacturing sector. However, the inter-regional pattern of growth in this sector has not been analysed for the following reasons. First, the annual growth rate of tertiary sector in the State was about 4 per cent, which was considerably lower than that of manufacturing (over 6 per cent) during the reference period (30). Second, the relative size of tertiary sector was found to be strongly associated with the size of administrative population. Across districts, the correlation coefficient between percentage contribution of tertiary sector in total income and proportion of persons employed in public sector to total population came to 0.80. Third, by that token, the size of tertiary sector does not appear to be an appropriate indicator of economic development, so far as this analysis is concerned. In fact the bulk of rural population is

scarcely covered by, public facilities. On the other hand, institutional facilities are also created in relatively backward areas as a matter of developmental policy. In other words a growth in tertiary sector might occur even without a real increase in production and income of the people in general. The inter-regional disparities in PCI may thus be meaningfully explained with the help of factors associated with agricultural and industrial development. The districtwise values of indicators used in the present context are shown in Annexures 10 and 13.

Development of Agriculture

The development of agriculture, as it is generally conceived, has been severely constrained in three of the regions, namely Bundelkhand, Hill and Eastern, on account of endowmental factors. In Bundelkhand the quality land is poor. The preparation of land for cultivation in the region is arduous, rainfall as well as moisture retention capacity of the soil is low and development of tubewell irrigation conspicuous. As such the crop yield rates are generally low, proportion of high value crops is very small and that of coarse grain crops is relatively high. in 1975-76 For instance the average yields of wheat and paddy in the region were estimated at 10.23 and 7.82 quintals per hectare, compared to 13.57 and 9.29 quintals per hectare respectively for the state and being the lowest among all the regions (31). The gross value agricultural output for the year (1976-77) in case of Bundelkhand was estimated at only Rs.1494 per hectare of net area sown, against Rs.3314, Rs.2644, Rs.2401 and Rs.3306 Western, Central, Eastern and Hill regions and Rs.2703 for the State (32).

Still more stringent are the conditions in hill areas, where preparation of land and its maintenance is much more difficult and there is hardly any scope for development of irrigation. The Eastern region, on the other hand, faces droughts and floods more frequently, and also has the smallest size of land-holdings, with the highest proportion (90 per cent) of small and marginal holdings. The cultivators, in the Eastern could thus take little advantage of the modern agricultural technology. It is for these reasons that Bundelkhand, Hill and Eastern regions have been recognised by the government as special problem areas. It may be mentioned here that Bundelkhand and Hill regions together represent only a little over 9 per cent of the State's population, of which 38 per cent is accounted for by Eastern region alone. Agricultural development in the Eastern region therefore requires much greater attention not only because of its size, but also because the growth rate of 'Agriculture and Allied' sector was the lowest in case of this region, being 0.71 per cent per annum, against 4.45, 2.32, 4.36 and 5.04 per cent per annum respectively for Western, Central Bundelkhand and Hill regions respectively, and 2.99 per cent for the State during the reference period 1968-76.

It may however be noted that the inter-regional disparities in Uttar Pradesh persisted very much due to the differences in agricultural growth rates, as depicted above. The sources of agricultural growth may be defined as (increases in) area under cultivation and productivity levels, where an increase in agricultural productivity may, in turn, be explained in

terms of changes in crop yield rates and cropping intensity and shifts in the cropping pattern. Over the reference period, however, there was no increase in the State's net area sown, which remained around 173 lakh hectares but the gross value of output showed considerable increase (33). Thus growth in agricultural sector was resulted mainly from increase in the output per unit of land. This is supported by Table-19, as also by a highly significant positive correlation coefficient (0.48) between the growth rate of primary sector and the growth of agricultural productivity across the districts. Regarding the growth in agricultural productivity, let us take note of a few observations based on a decomposition exercise (34) across the U.P. districts over the reference period 1968-77. Accordingly, the effect of cropping pattern shifts was found to be most important, contributing to 49 per cent of the total variation in output growth across all the districts on an average during 1968-77, while the contribution of yield rates was a little over 41 per cent, of 'area' about 3 per cent and interaction between yield rate and cropping pattern about 7 per cent. In that exercise 'area' refers to growth of total cropped area and hence to increase in cropping intensity because there was almost no change in net area under agriculture in the State. The growth in agricultural productivity was thus mainly due to shifts in cropping pattern, followed by increase in crop yields. In other words, though the coverage of high yielding varieties and the modern agricultural package contributed significantly to the agricultural growth rate, commercialisa-

tion was relatively more important in it during the reference period.

It is evident from the above that 90 per cent of the growth in agricultural productivity in the state during 1968-77 occurred due to improvements in technology and shifts in cropping pattern. Change in cropping intensity had, however, little impact on productivity. In fact, the small farmers, on account of their agricultural subsistence and limitations to resource access, resort to making more intensive use of land for increasing production. This is evident by a highly significant and negative correlation coefficient (-0.84) between cropping intensity and average landholding size across districts.

The major factors accounting for the inter-regional variations in agricultural growth rates come out to be the coverage and quality of irrigation and landholding size. Table 20 shows strong positive correlation coefficients of agricultural productivity with the coverage of irrigation and the proportion of irrigated area served by tubewells. The table also shows that fertilizer consumption increased with increase in irrigation and further with coverage of tubewells, which provide assured irrigation. The increase in fertilizer consumption was more marked in areas with relatively large land holdings, where coverage of irrigation was also greater. Within this framework, the differences in levels and growth rates of agricultural sector among the Western, Central and Eastern regions, may be attributed to the differences in the extent of coverage and quality of irrigation and size of

agricultural holdings. These regions represent about 91 per cent of the State's population. The remaining two regions, namely Hill and Bundelkhand, are typically different, where agricultural growth rates were found to be relatively high, even though the agricultural technology and cropping pattern remained by and large traditional. The problems of these two regions need to be studied separately.

Table 19 : Distribution of Districts by Annual Growth Rates of the Primary Sector and Agricultural Productivity (1968-76)

(Number of districts)

Productivity Growth Rate %	Primary Sector Growth Rate %					Total
	Below 1	1-2	2-3	3-4	4 or more	
Below 1	10	2	2	-	-	14
1 - 2	-	3	1	2	-	6
2 - 3	1	1	2	1	3	8
3 - 4	-	1	1	2	-	4
4 or more	1	1	6	3	8	19
Total	12	8	12	8	11	51

Growth of Manufacturing Sector

The size of manufacturing sector in the state is relatively small. In the year 1975-76, the contribution of this sector to the state's total income was only about 11 per cent. The corresponding figure was about 13 per cent, the highest, in case of Western region against a low of a little over 4 per cent for Bundelkhand and Hill regions each. The inter-regional differences in industrial growth rates were more pronounced than the differences in agricultural growth rates, mainly for two reasons.

Table 20 : Association Between Irrigation Development, Fertilizer Consumption, Cropping Intensity, Landholding Size and Agricultural Productivity.

Description(Pairs of Indicators)	Reference Period	Correlation Coefficient
1.Agricultural Productivity per hectare with		
1.1 Net Irrigated areas as proportion of Net Area Sown	1968-69 1975-76	0.59 0.39
1.2 Proportion of Irrigated areas under tubewell irrigation	1968-69 1975-76	0.44 0.09
1.3 Gross Irrigated area as proportion of Gross cropped area	1968-69 1975-76	0.57 0.43
1.4 Fertiliser distribution per hectare	1968-69 1975-76	0.68 0.46
1.5 Cropping Intensity	1968-69 1975-76	0.12 0.22
2.Average Land Holding Size with		
2.1 Growth rate in item 1.3	1968-76	0.67
2.2 Growth rate in item 1.4	1968-76	0.97
2.3 Cropping Intensity	1968-76	-0.84
3.Fertilizer distribution per hectare with		
3.1 Net irrigated area as proportion of net area sown	1968-69 1975-76	0.51 0.58
3.2 Gross Irrigated area as proportion of Gross cropped area	1968-69 1975-76	0.72 0.80
3.3 Proportion of Irrigated area under tubewell irrigation	1968-69 1975-76	0.51 0.58
4.Fertilizer distribution per hectare- Annual Growth rate, with		
4.1 Gross Irrigated area as proportion of Gross cropped area-Annual Growth Rate	1968-76	0.73

First, the demand threshold for viability of manufacturing activities is relatively larger, extending, for instance, beyond district or regional boundaries. Second, industrial activities tend to get concentrated in areas that are better served with infrastructural facilities, material supplies and market. Thus, of greater relevance to industrial growth in a region, than to agricultural growth, are economic and external factors vis-a-vis the endowmental and endogeneous factors. In the present context, however, the variations in industrial growth rates were examined in association with the situations obtaining within regions, namely the state of agricultural development, scale of industrial activities and availability of the infrastructural facilities. It may be mentioned here that the analysis of the pattern of industrial growth was confined to these aspects only for want of adequate data to make it more comprehensive. Further, the reasons for counting on agricultural development in the context of agricultural growth are twofold. First, the economic conditions of the people in majority are linked with the performance of agriculture. A perceptible growth in agricultural sector might therefore induce growth in industrial sector through income-demand-production relationships. Second, through the process of economic development, inter-sectoral linkages tend to get strengthened. For instance, with agricultural modernisation including mechanisation, the input-output linkages between agricultural and industrial sectors are, likewise, expected to get established and strengthened. Following are the main observations regarding factors responsible for differences in industrial growth rates among regions.

First, there is evidence that increase in agricultural productivity had led to economic diversification in favour of non-agricultural activities(35). It may be recalled here that growth of the agricultural sector during the reference period was mainly on account of increase in the productivity per unit of land. But then, as agricultural subsistence continued to prevail in major parts of Uttar Pradesh, and the phenomena of development was not sufficiently widespread, the inter-sectoral linkages in the State's economy were found to be generally weak(36).

Second, there was an indication that the small manufacturing sector derived strength from the growth of agricultural sector. The value of correlation coefficient between the growth rates of agriculture and unregistered manufacturing sector across districts worked out to 0.35 (significant at 5% level). But the correlation coefficient between the growth rates of agriculture and the registered manufacturing sector was only 0.17.

Third, the sectoral income estimates for the regions show that during the period 1968-76, the registered manufacturing sector has grown faster than the unregistered sector. According to table- 21 the share of registered sector in the total income from manufacturing in the State was 41 per cent in 1968-69. The figure rose to about 54 per cent in 1975-76. Over this period the manufacturing sector grew at the average annual rate of 6.18 per cent. The proportion of income from unregistered manufacturing also declined in all the regions except Bundelkhand where industrial growth rate was found to be the lowest.

Fourth, as regards the relationship between availability of infrastructure and institutional finance, it was examined summarily on an inter-district basis, according to which availability of institution finance was crucially important for industrial growth. The correlation coefficients presented in Table-22 show that density of roads and village electrification have positive impact on growth of manufacturing sector, although the corresponding correlation coefficients were

Table 21 : Size Composition of Registered and Un-Registered Manufacturing Sectors and Growth Rates of Manufacturing Sector in Regions of Uttar Pradesh

Regions	Percentage of Income from Manufacturing produced by				Annual Growth rate of income from Manufacturing 1968-76 %	
	Registered Sector		Un-Registered Sector			
	1968-69	1975-76	1968-69	1975-76		
Western	35.82	56.22	64.18	43.78	8.52	
Central	55.05	61.58	44.95	38.42	6.02	
Bundelkhand	17.29	5.98	82.71	94.02	1.56	
Eastern	40.82	45.56	59.18	54.45	2.85	
Hill	50.42	62.29	49.58	37.78	6.31	
State	41.03	58.97	58.97	46.38	6.18	

statistically not significant. The relationships of growth in income from manufacturing with availability of institutional finance as well with actual availment of loans were however found to be both positive and statistically significant.

It follows from the above that there is a dichotomy between the growth of industrial sector and its linkage with agricultural sector.

While the growth of unregis-

tered manufacturing sector appears to be positively associated

Table 22 : Growth Rate of Manufacturing Sector in Association with Infrastructural facilities and availability of institutional finance.

Indicators	Correlation Coefficients with growth rate of manufacturing sector	
	Set I	Set II
1. Length of pucca road per unit of geographical area(1975)	0.19	0.22
2. Percentage of villages at below 1km. from pucca road(1975)	0.06	0.05
3. Percentage electrified inhabited villages (1976)	0.20	0.19
4. No.of bank units per lakh of population (1973-74)	0.28*	0.51*
5. Amount of loan advanced by commercial banks per capita in 1975-76.		
5.1 Non agricultural sector	0.44**	0.50**
5.2 Retail trade & small business	0.38**	0.43**
5.3 Small industries, craftsmen	0.39**	0.42**
5.4 Total	0.23	0.37*

* Significant at 5% level

** Significant at 1% level

Note: The growth rate of manufacturing sector refers to the period 1968-76. The set-I signifies all the district observations and set-II only 46 observations, excluding hill districts. Item 5.1 represents only the priority/weake sector. Where the figures for a district is the difference in balance outstanding.

with growth agricultural sector, which represents the rural economy, it is the registered manufacturing sector which exhibited higher rate of growth. This might be so because large industrial sector has a larger demand base and uses relatively more efficient technology. The development of large scale industrial sector is important for growth of the national or state economies. But it does not appear to have much significance for regional or district development over a short period.

Chapter VI

PUBLIC POLICY AND REGIONAL DEVELOPMENT

Towards achieving faster growth of the state's economy and reducing inter-regional disparities, the role of the government lies in creating physical infrastructure and institutional facilities and providing inducements for diversification and growth of economic activities on a preferential basis in backward areas. If its important therefore to briefly examine what have been the inter-regional priorities of development and whether could they bring about sufficient growth in backward district/regional economics. This involves a study of the inter-regional and inter-district pattern of public expenditure, flow of institutional finance and progress of the infrastructural facilities. The flow of institutional finance in a region or district is however not directly under the purview of the government, but there the role of the Government lies in drawing out plans for extending coverage of the banks to unserved areas, making available investment finance for economic activities, particularly those on priority list, and providing incentives like subsidies on capital and interest charges for promoting investment in the priority sector. In the present context it is intended to bring out the inter-regional pattern of resource inflows and to examine whether this pattern implied a preference for backward areas. It seems however necessary to mention beforehand, the requirements and availability of data and sources thereof.

Data Base

A study of the inter-regional priorities of development would require data on 'divisible' and 'non-divisible' components of the developmental expenditure incurred by the government on capital and revenue accounts in different regions and districts. Since certain developmental schemes are taken up for region specific purposes while others are meant for the State as a whole, the inter-regional priorities would be more appropriately revealed by the regional, divisible, component of the public expenditure. Instead however only the plan expenditure (divisible) data was available for major heads of development in respect of the regions for the years 1974-75, 1975-76 and 1976-77, published on ad-hoc basis in the State's annual plan (Draft) for 1978-79, Volume-1. For the districts also, the plan expenditure data was available only for the years 1974-75, 1975-76 and 1976-77, from the district annual plans for the year 1977-78. It related to the schemes and projects of the State Sector, the State Corporations, Centrally sponsored ones and of the Central Sector. In absence of worthwhile alternative, the aforesaid regionwise and district-wise figures of plan expenditure were taken as proxy for the public investments. The corresponding data for earlier years of the reference period, i.e. 1968-69 to 1973-74, was not available. It was thus not possible to relate the growth of public investments with the growth of a regional or district economy. Further, not much reliability could be attached to the expenditure data reported in the district plans due to organisational problems. Also, in case of certain districts the data for all the three years was not available. For the study of the

inter-regional pattern of expenditure, therefore, the reported expenditure figures were averaged over the three years. The average annual plan expenditure figures thus obtained were aggregated for the agricultural and non-agricultural schemes. The expenditure on agricultural schemes is the sum total of that on State Irrigation, Soil Conservation, Storage and Warehousing, Cane Development, Area Development, Command Area Development, Community Development, general programmes of Animal Husbandry, Dairy, Fishery and Forestry including strengthening of the development departments at district level. For the purpose of the analysis, the district wise per capita average annual plan expenditure (1974-77) - total, agricultural and non-agricultural- was used.

The data on institutional finance as available in many of the district plan documents, was incomplete. Alternatively, some data on commercial bank loaning in the districts was available from the Directorate of Institutional Finance, Government of Uttar Pradesh, showing the total amount of advance made and the total advances to the 'priority/weaker' sectors together as on last Friday of December 1975 and 1976. The 'priority/weaker' sectors included agriculture, small scale industries, transport, retail trade and small business, professionals and self employeds, and industrial estates. The annual amount of loan disbursed in a district, the total for all sectors and that for the 'priority/weaker' sectors, in the corresponding year 1975-76 was worked out as the difference of the advances (cumulative) made upto December of 1975 and 1976. For the individual sectors in the group 'priority/weaker' sectors, the data showing only the

'balance outstanding' was available at the two points of time. The difference between the balance outstanding was also analysed as proxy for inter-district pattern of loaning for want of any other alternative, though it lacked credibility of an indicator for resource inflows. Another major source of financing in the agricultural sector is the U.P. State Co-operative Land Development Bank, from which figures of loan distributed in different districts during 1975-76 was collected. The sum total of the plan expenditure averaged over 1974-77, the commercial banks' financing in 1975-76 and Land Development Bank advances during 1976-77 was used as an indicator of inter-regional and inter-district variations in total annual inflow of resources. Presented below are the inter-regional pattern of plan expenditure and institutional finances on the whole and with particular reference to development of agricultural and non-agricultural sectors. The inter-district patterns of plan expenditure and institutional financing are shown in Annexure 13.

Total and Per Capita Plan Expenditure (Divisible) and Bank Loans

Taking the average annual plan expenditure over 1974-77 as that corresponding to the year 1975-76, the total of plan expenditure (divisible) and bank loans in that year in the State amounted to Rs.420.27 crores, of which Rs.256.52 crores (61.04 per cent) was in the form of plan expenditure, Rs.140.41 crores (33.41 per cent) financed by commercial banks and Rs.23.34 crores (5.55 per cent) especially for agricultural purposes by the U.P. State Co-operative Land Development Bank (LDB). Typically for the Hill region the per capita total annual flow was

Rs.102.76, which was the highest, while financing from LDB was of the lowest order as compared with other regions (Table 23). The proportions of public expenditure in the total resource flows for Bundelkhand, Hill and Eastern regions were 87.75 per cent, 72.36 per cent and 69.45 per cent, which were much higher than those of Central and Western regions. The shares of the institutional finance in these regions were relatively smaller. The most disadvantaged regions in terms of per capita total resource flow were the Eastern and Bundelkhand.

It may be recalled here that during the reference period, the per capita income was highest for the Hill region, followed by Western, Bundelkhand, Central and Eastern region, and the size of population largest in the Eastern region, followed by Western, Central, Bundelkhand and the Hill region in that order. Also, Hill, Bundelkhand and Eastern regions have been recognised as special problem areas of the State. The average annual growth rate of per capita income of these three regions were found to be 2.45 per cent, 1.97 per cent and (-)0.96 per cent. The situation therefore demanded the priorities for regional allocations in the reverse order. It would be interesting to look at the regional and sectoral break-ups of the financial flows accruing from different sources separately.

Plan Expenditure

Over the period 1974-77 the sum total of the divisible regional components of the yearwise plan expenditure ranged between 47 per cent and 59 per cent of the State's total plan expenditure incurred (Table 24), giving an average of 53.43 per cent. In the year 1976-77, compared with 1974-75, the propor-

tion of plan expenditure increased only for the Western region, from 20.53 per cent to 24.06 per cent, while the figure in case of other regions declined. The share of the most backward Eastern region in the total divisible expenditure (1974-77) was about 39 per cent, being the highest, followed by 22 per cent for Western and Central each, and about 13 per cent and 5 per cent for the Hill and Bundelkhand regions. However, the average annual per capita expenditure was highest (Rs74.36) in Hill region, where the financial involvement in carrying out development programmes is much higher per unit of physical progress than that in other regions. Moreover, even if the allocation for the Hill region was drastically reduced, it would have not implied any marked increase in the per capita allocation for other regions, particularly the most backward Eastern region, because of the difference in the size of population.

Save the Hill region, the per capita plan expenditure was highest in the Central (Rs.32.36), followed by Eastern (Rs.27.04), Bundelkhand (Rs.25.52) and Western (Rs.16.30). Notably, the figure for Eastern region, which is most backward, was lower than the relatively better off Central region. Further, a low per capita figure of Rs.25.52 for Bundelkhand suggests that this region was relatively ignored. Let us now come down to the sectoral priorities of the public expenditure and examine how could they conform to situations obtaining in different regions.

The sectoral pattern of the regional divisible expenditure shows a high priority for development of physical infrastructure, where the percentage of expenditure on State Irrigation, Road and Power sectors during the period 1974-77 was 59.70 for all the

Table 23 : Flow of Finances from the Government,
 Commercial Banks and Land Development Banks.
 in Different Regions.

Region	Average annual plan exp- enditure (divisible) 1974-77	Institutional Finance			Total 1+2+3	Per Capita Total (Rs.)	(Lakh Rs.)
		Commercial Banks	LDB	1	2	3	4
Western	5641.01 (43.39)	6227.41 (47.90)	1132.75 (8.71)	13001.17 (100.00)		37.56	
Central	5620.09 (53.46)	2859.78 (32.29)	376.76 (4.25)	8856.63 (100.00)		49.20	
Bundelkhand	1216.17 (87.75)	115.68 (8.35)	54.11 (3.90)	1385.96 (100.00)		29.09	
Eastern	9935.80 (69.45)	3643.25 (25.46)	728.29 (5.09)	14307.34 (100.00)		32.27	
Hill	3239.00 (72.36)	1194.96 (26.70)	42.28 (0.94)	4476.24 (100.00)		102.76	
All Regions	25652.07 (61.04)	14041.08 (33.41)	2334.19 (5.55)	42027.34 (100.00)		42.96	

Note: Figures in parentheses are percentages to the Total.

Source: District annual plans 1977-78, records of the
 Directorate of Institutional Finance and of U.P. State
 Cooperative Land Development Bank (LDB).

Table 24 : Plan Expenditure (Divisible) for Regions, 1974-77.

Region/State	Total Expenditure (Lakh Rs.)			Per Capita	
	1974-75	1975-76	1976-77	Annual Average	Annual Average (Rs.)
0	1	2	3	4	5
Western	4057.20 (20.53)	4582.15 (20.12)	8283.68 (24.06)	5641.01 (21.99)	16.30 (62.17)
Central	4558.07 (23.07)	4901.29 (51.53)	7400.92 (21.50)	5620.09 (21.91)	32.36 (123.42)
Bundelkhand	798.55 (4.04)	937.26 (4.12)	1912.71 (5.56)	1216.17 (4.74)	25.52 (97.33)
Eastern	7711.80 (39.03)	9551.78 (41.95)	12543.81 (36.43)	9935.80 (38.73)	27.04 (103.13)
Hill	2635.00 (13.33)	2795.00 (12.28)	4287.00 (12.45)	3239.00 (12.63)	76.36 (283.60)
Sub-Total (Divisible)	19760.62	22767.48	34428.12	25652.07	26.22
Percentage of Sub-total to Grand Total	52.81	47.30	58.86	53.43	53.43
Non-Divisible	17657.38	25364.52	21054.88	22358.93	22.85
Grand Total	37418.00	48132.00	58183.00	48011.00	49.07

Note : Figures in parentheses are percentages to the corresponding sub-total (Divisible)

Source: Draft Annual Plan, 1978-79, Vol.1, Uttar Pradesh, Planning Department, Government of U.P., December 1977.

Table 25 : Divisible Regional Components of the Plan
Expenditure by Sectors during 1974-77.

(Lakh Rs.)

Sector	Region					All Regions
	Western	Central	Bundel- khand	Eastern	Hill	
1. Agriculture, Animal Hus- bandry, Fish- eries, SFDA and Soil Conservation	718.64 (4.25)	391.98 (2.32)	224.84 (6.16)	666.60 (2.24)	485.92 (5.00)	2487.98 (3.23)
2. State Irrigation	5405.00 (31.94)	7311.00 (43.36)	1178.00 (32.29)	17078.00 (57.29)	499.64 (5.14)	31471.64 (40.90)
3. Power	3660.00 (21.63)	735.00 (4.36)	239.00 (6.55)	2743.00 (9.20)	688.00 (7.08)	8065.00 (10.48)
4. Village & Small Industries	625.00 (3.69)	137.00 (0.81)	60.00 (1.64)	300.00 (1.01)	274.00 (2.82)	1396.00 (1.81)
5. Road	1336.66 (7.90)	663.74 (3.94)	447.23 (12.26)	1136.74 (3.81)	2821.82 (29.04)	6406.19 (8.32)
6. General Education	886.79 (5.24)	457.74 (2.72)	200.92 (5.51)	866.29 (2.91)	932.43 (9.59)	3344.17 (4.35)
7. Medical, Health and Water Supply	760.00 (4.49)	893.93 (5.30)	476.93 (13.07)	1085.75 (3.64)	1570.77 (16.77)	4787.38 (6.22)
8. Others	3530.94 (20.86)	6269.89 (37.19)	821.60 (22.52)	5931.01 (19.90)	2444.42 (25.16)	18997.86 (24.69)
9. Total Agri- cultural and Irriga- tion(1+2)	6123.64 (36.19)	7702.98 (45.69)	1402.84 (38.45)	17744.60 (59.53)	985.56 (10.14)	33959.62 (44.13)
10. Total Irri- gation, Power and Road	10401.66 (2+3+5)	8709.74 (61.46)	1864.23 (51.66)	20957.74 (51.10)	4009.46 (70.31)	45942.83 (41.26)
Grand Total (1to9)	16923.03 (100.00)	16860.20 (100.00)	3648.52 (100.00)	29807.39 (100.00)	9717.00 (100.00)	76956.22 (100.00)

Note : Figures in parentheses are percentages to the Grand Total. Expenditure against 'others' at Sl.No.8 was obtained as residual. The figure for 'Road' in Hill region was taken from the plan expenditure statement given separately in the plan document. State irrigation for the Hill regions stands for State Minor Irrigation in the table.

Source: Draft Annual Plan 1978-79, Vol.1, Uttar Pradesh,
December 1977.

regions together. This percentage was highest for the most backward Eastern region (70.31) followed by Western (61.46), Central (51.66), Bundelkhand (51.10) and Hill (41.26).^(Table 25) Among these sectors development of irrigation received highest priority in Eastern region, as this region has been frequently facing droughts and where most of the cultivators are small and marginal landholders who lack resources to own tubewells and pumping sets

In the Western region, where industrialisation has gone much ahead of other regions, a high priority was needed for power sector, particularly the village electrification programme, as is also evident from the table. Construction of roads received the highest priority in the Hill region, followed by Bundelkhand, where the villages are sparsely located. Let us now compare the pattern of expenditure and the physical progress of these works in the light of their significance to economic development in different regions.

So far as irrigation development is concerned, the expenditure incurred on it can be more appropriately compared among regions per unit of land under agriculture. Similar is the case with agricultural development programmes. The expenditure on State irrigation per hectare of net area sown during 1974-77 was Rs.60.38 per annum (Table 26), while that on other agricultural programmes, referred to earlier only Rs.4.77. For development of agriculture main attention was given for creation of irrigation facilities. It may be noted that in Eastern region the average annual expenditure on irrigation came to Rs.102 per hectare while the percentage of net irrigated area to net area sown increased from 37.90 in 1968-69 to 43.80 in

in 1976-77, i.e. by only about 6 percentage points. Contrary to this was the case of Western region, where the per hectare expenditure was the smallest (Rs.33.88) but the percentage point increase in the proportion of irrigated area during the period was about 15, being the highest (Table 26). Special mention may be made of Bundelkhand region where both the per

Table 26 : Plan Expenditure on State Irrigation and Coverage of Irrigation in Regions of Uttar Pradesh.

Region	Average Exp.in Rs.per ha.per annum in 1974-77	Net Area Irrigated as percentage of Net Area Sown (%)	
		1968-69	1976-77
Western	29.91	51.20	65.95
Central	80.23	28.00	38.55
Bundelkhand	21.65	20.20	22.50
Eastern	98.46	37.90	43.80
Hill	23.21	16.80	24.23
All regions	60.38	38.00	50.59

Note : Net Area Sown was taken for the year 1976-77.

Source: Draft Annual Plan, Uttar Pradesh, 1978-79, Vol. 1, December 1977, Indicators of Development of Uttar Pradesh, State Planning Institute, Government of Uttar Pradesh, 1979, and Season and Crop Report 1976-77, Board of Revenue.

hectare government expenditure and increase in the proportion of irrigated area were the lowest. Considerable disparity existed in the coverage of irrigation among regions both in the year 1968-69 and 1976-77 and even today. In 1976-77, the percentage of irrigated land under agriculture was the highest in Western (65.95) followed by Eastern (43.80), Central (38.55), Hill (24.23) and Bundelkhand (22.50). Here the figure 24.23

for the Hill region gets inflated because of Nainital and Dehradun districts having together 48.33 per cent of agricultural land irrigated while in other districts, namely Almora, Pithoragarh, PauriGarhwal, Chamoli, Tehri Garhwal and Uttar Kashi together, the figure was only 10.35 per cent. It may be reckoned that there is hardly any scope for irrigation development in hilly areas. Irrigation facilities, particularly canals are however badly needed in Bundelkhand region, where coverage of irrigation is lowest. The Central region which has a percentage of irrigated area smaller than Western and Eastern region, and is also agriculturally backward, also deserves greater attention.

As regards electrification of villages not much has been done so far. In 1977-78, for instance, only a little over 28 per cent of the villages in the State were electrified. As a public facility, electrification is required to be uniformly carried out among regions. But, as the resources are limited, it becomes necessary to ensure productive use of power as far as possible. Some preference for relatively developed regions would therefore be desirable. In the Western region, with 21.6 per cent of divisible expenditure on Power Sector (1974-77) the percentage of electrified villages increased from 17.10 in 1968-69 to 34.03 in 1973-74 and 38.07 in 1977-78, the highest among the regions (Table 27). The percentage point increase in 1977-78 over 1968-69 in the proportion of electrified villages was about 21 in Western and Central region, and between 14 to 16 in other regions, which were industrially as backward. The per capita annual consumption of electricity (KWH) was 82.3 for

Western region, and for the state, in 1977-78. The figure was highest 91.7 for Eastern, which got inflated because of very high consumption in Mirzapur (886.8 KWH per capita) having the aluminium factory HINDALCO. The lowest per capita consumption of electricity was in Bundelkhand. The use of electricity in agriculture was most intensive in Western region, followed by Eastern, Central, Hill and Bundelkhand. Generally the consumption of electricity would be higher in more urbanised and economically developed areas. Special attention however needs to be paid for village electrification in the least served Bundelkhand and Hill regions.

Table 27 : Village Electrification and Consumption of Electricity in Regions of Uttar Pradesh

Region	Villages Electrified (%)			Annual Consumption of Electricity (KWH)	
	1968-69	1973-74	1977-78	Per Capita 1977-78	Per hectare in Agriculture 1977-78
Western	17.10	34.03	38.07	82.3	135.8
Central	7.20	21.57	27.93	80.0	48.9
Bundelkhand	3.57	11.72	17.59	23.1	13.4
Eastern	10.53	24.44	26.47	91.7	84.1
Hill	1.79	7.95	17.36	78.3	17.4
State	10.37	23.89	28.11	82.30	87.6

Source : Indicators of Development of Uttar Pradesh, State Planning Institute, Government of Uttar Pradesh, 1979, and Draft Sixth Five Year Plan 1980-85 (Review) Vol.1, Government of Uttar Pradesh, Nov.1980.

The importance of road infrastructure in the context of regional or area development lies in connecting the villages. In Hill region, followed by Bundelkhand, where villages are sparsely located, greater mileage of roads per unit of area is therefore needed. In these two region 29 per cent and 12 per cent of the plan expenditure was incurred/during 1974-77. This percentage for other regions lay between 3.8 and 7.9 with the average for all regions at 8.3. The length of pucca roads in the State was 10.3 kms. per 100 square kms. in the year 1968-69 and 19.3 kms. per 100 sq.kms. in 1978-79 (Table 28). To certain extent the inter-regional differences in terms of the density of roads got reduced during the reference period. In the Hill region, although the density of road comes to be the highest, the percentage of inhabited villages at less than 1 km. of pucca roads in 1976 was even less than the State's average of 22.56 per cent. In Bundelkhand, all the individual districts had a lower percentage of the villages connected by roads, as compared with the state's average. Thus there was need for greater emphasis on road construction in the hilly areas and in the Bundelkhand region.

Institutional Finance

This section makes an appraisal of the coverage of banks per unit of population and availment of institutional finance in different regions. In the mid year (1973-74) of the reference period the number of commercial banks in the State per lakh of population was 1.68 and that of LDB only 0.21 (Table 29). The coverage of commercial banks was much greater than that of the LDB. The density of bank units was lowest in the Eastern region. The Hill region had the highest average density of

Table 28 : Density and Construction of Roads in Regions of Uttar Pradesh

Region	Pucca Road Length per 100 sq. km. of area		Length of Road Constructed during 1974-77	(Kilometers)
	1968-69	1978-79		
Western	11.9	18.8	531	
Central	9.4	19.5	315	
Bundelkhand	7.4	13.7	230	
Eastern	11.3	20.3	616	
Hill	12.1*	21.1	869	
State	10.3*	19.3	2561	

* Excluding Uttarakhand, Chamoli, Pithoragarh and Uttar Kashi districts

Source : Policy Paper of the Fifth Plan, State Planning Commission, Uttar Pradesh, November 1972, Draft Annual Plan of Uttar Pradesh 1978-79, Vol.1, December 1977, and Draft Sixth Five Year Plan 1980-85 (Review) Vol.1, Uttar Pradesh, 1980.

commercial banks (3.15 per lakh of population), followed by Western region (1.98). In the Hill region the figures for

Nainital and Dehradun districts were 4.2 and 7.7 commercial bank units per lakh of population, while those for the district groups Almora & Pithoragarh, Garhwal & Chamoli and Tehri

Table 29 : Number of Bank Units per lakh of Population in Regions of Uttar Pradesh (1973-74)

Region	Number per lakh of population	
	Commercial Banks	Land Development Bank
Western	1.98	0.24
Central	1.81	0.19
Bundelkhand	1.52	0.35
Eastern	1.20	0.18
Hill	3.15	0.22
State	1.68	0.21

Source : Based on data available in Ranking of Districts by Indicators of Development, State Planning Institute, Uttar Pradesh, 19 and records of the Land Development Bank Headquarters.

Garhwal and Uttar Kashi were only 1.9, 1.4 and 2.1 respectively. Similar is the case with Eastern region where the average density of the banks got a little inflated on account of relatively greater concentration of banks per unit of population in Varanasi, Allahabad and Mirzapur. Major parts of the Hill and Eastern regions were little served with banking facility.

The amount of loan distributed by the commercial banks during 1975-76 was of the order of Rs.140.41 crores of which Rs.94.85 crores (67.55 per cent) was for the priority/weaker

sectors. This percentage varied from 57.75 in the Eastern region to 97.45 in Central region. The priority/weaker sectors implied here are agriculture, small industry (craftsmen, qualified entrepreneurs and small scale industries), transport, retail trade and small business, professionals and self employeds and industrial estates. The development of these sectors is deemed necessary on a priority basis with a view to making dent on smaller economies, as of districts. The per capita loaning to the priority/weaker sector was highest (Rs. 16.68) in the Hill region, a little lower (Rs.16.05) in Central, followed by Western (Rs.10.89), and quite low in Eastern (Rs. 5.73) and Bundelkhand (Rs.2.10) in 1975-76. What appears from the above is that the absorption capacity of the Eastern and Bundelkhand economies, both of which are industrially backward, comes out to be very low. Interesting however is the case of the Hill region where in spite of industrial backwardness, per capita loaning was the highest (Table 30).

So far as the loaning for industrial sectors concerned, no such data was available for regions and districts. As a crude alternative to that, the difference between the 'Balance Outstanding' in Dec.1976 over December 1975 in respect of the individual sectors was taken as indicator for studying the sectoral pattern of advancing within regions, as shown in Table 30. Accordingly in the Western and Central regions, there was greater demand for loans in the industrial sector, unlike the industrially backward Hill, Bundelkhand and Eastern regions. The per capita loan was lowest in Bundelkhand followed by Eastern region. But in the Hill region it was the highest, and

Table 30 : Commercial Bank Loaning in Sectors and Regions of Uttar Pradesh (1975-76)

Priority/Weaker Sector	Regionwise percentages to total of the reported sectors					All Regions
	Western	Central	Bundel-khand	Eastern	Hill	
1.Agriculture	33.96	25.95	54.17	47.98	57.04	40.66
2.Small Industry	38.14	47.23	21.85	32.56	17.01	36.28
3.Transport	6.44	7.31	6.44	6.64	8.64	6.83
4.Retail Trade & Small Business	7.63	16.49	11.57	9.07	7.16	9.53
5.Professionals and Self-employed	8.83	3.02	5.97	3.75	10.15	6.70
Total* (1 to 5)	100.00	100.00	100.00	100.00	100.00	100.00
Per Capita advance to Priority/ Weaker Sectors in 1975-76(Rs.)	10.89	16.05	2.10	5.73	16.68	9.69
Advances to Priority/ Weaker Sectors as Percentage to total Advances in 1975-76	60.51	97.45	86.30	57.75	60.79	67.55
Per Capita Total Advances 1975-76 (Rs.)	17.99	16.47	2.43	9.91	27.43	14.35

* Based on district-wise difference in balance outstanding in Dec.1976 over Dec.1975.

major part of the demand for commercial bank loans came from agricultural sector (57.04 per cent) followed by small industries (17.01 per cent), which is an interesting case and needs to be studied separately. The demand for loans was, however, generally higher in industrially 'developed' areas.

The amount of loan distributed by the LDB per hectare of agricultural land under agriculture in the year 1975-76 was highest in Western region (Rs.18.80) followed by Eastern (Rs.12.60), Central (Rs.12.40), Hill (Rs.5.89) and Bundelkhand (Rs.2.98), with the State's average at Rs.13.43, on the basis of the records of the Land Development Bank. Short term credit per capita of rural population, ^{the figure} available for 1974-75, was the highest (Rs.14.97) in Hill region, followed by Western (Rs.13.97), Eastern (Rs.12.05), Bundelkhand (Rs.8.27) and Central (Rs.5.97) as shown in Table 31. It hardly needs to be mentioned that the figures for the Hill region get inflated due to the demands in the highly developed Nainital and Dehradun districts. Yet there appears to be the need for studying the pattern of resource flows in Hill region in relation to the economic activities separately. What clearly emerges from the above is that LDB loaning was poor in Bundelkhand because of the lack of scope for use of pumping sets and tubewells. Short term loaning in rural areas was also low in Bundelkhand due to the conditions inhibiting technological advancement particularly in agriculture. In Central region the amount of short term loan per capita in rural areas was the lowest, which may be associated *inter-alia* with low pace of agricultural development.

Table 31 : Loan Distributed by Land Development Bank
 Per hectare of Net Area Sown and Short Term
 Loans Distributed per capita (Rural) in
 Regions of Uttar Pradesh.

Region	LDB loan/ha 1975-76	(Rs.)	
		Short Term Loan Per Capita (Rural) 1974-75	
Western	18.80	13.97	
Central	12.40	5.97	
Bundelkhand	2.98	8.27	
Eastern	12.60	12.05	
Hill	5.89	14.87	

Note : The regional figures of per capita short term loans were obtained as the population weighted average across the districts.

Source: Based on records of LDB and Ranking of Districts by Indicators of Development, State Planning Institute.

Public Policy and Economic Development of Backward Regions

During the reference period, the inter-district differences in per capita income within the State have generally increased as is evident from Table 32, in spite of the emphasis on development of backward areas. It would be interesting to examine whether and how, if at all, could the policies help in growth of regional and district economies in general and in making a dent on relatively backward economies in particular. It hardly needs to be stated that creation and development of infrastructural facilities and their distribution in different parts of the State is the task, which comes directly under the purview of the government, besides spending on various other development programmes. The role of the government also lies

Table 32 : Co-efficients of Variation in District Per Capita Incomes Within Regions And State.

Set/Year	Western	Central	Bundelkhand	Eastern	Hill	State
<u>Set-I (PCIs At Constant Prices of 1970-71)</u>						
1968-69	18.56	23.48	7.23	16.39	32.47	29.54
69-70	16.11	24.47	6.81	17.93	33.11	30.04
70-71	14.77	25.26	7.00	19.98	36.97	31.25
71-72	24.69	27.87	6.18	21.23	25.67	32.82
72-73	20.44	30.45	5.37	18.64	23.85	33.88
73-74	20.85	29.89	5.10	28.68	26.63	34.84
74-75	26.17	31.90	9.54	23.26	20.75	36.70
75-76	23.74	29.81	4.14	22.78	27.10	35.33
<u>Set-II (PCIs At Current Prices)</u>						
1968-69	18.93	24.07	6.52	15.48	33.34	29.67
69-70	16.30	24.32	6.26	17.58	34.49	30.26
70-71	14.77	25.26	7.00	19.98	36.97	31.25
71-72	22.67	26.14	4.82	17.19	31.33	29.40
72-73	20.74	25.13	5.83	18.08	29.30	31.00
73-74	18.65	22.91	4.57	19.09	27.90	30.00
74-75	20.75	27.61	8.71	18.17	21.45	31.62
75-76	23.38	32.90	9.26	24.13	29.58	34.80
76-77	20.72	32.96	8.65	25.14	33.90	34.09

Coefficient of Variation = $(6x/x) \times 100$

Number of Observations: Western=18, Central=9, Bundelkhand=4, Eastern=15, Hill=5.

in trying to make available institutional finance for investments in priority sectors and to the preference groups for enthusing economic development at the local level. The present section tries to bring out how essentially the policy indicators are associated with the pace of growth, particularly with the growth rates of agricultural and industrial (manufacturing) sectors, and whether could the public policies help the backward district/regional economies grow at a faster rate.

The physical infrastructural facilities considered here are irrigation, road and power supply. The significance of irrigation development in increasing agricultural productivity is well known, as also referred to earlier in the context of agricultural development. Providing road connections to villages is very important for facilitating planning and execution of other development projects and programmes. Notably, road density per unit of geographical area and percentage of villages connected by roads were found to be highly correlated with the percentage of electrified villages and number of commercial bank units per unit of population (Table 33). There was also a positive association of the stock of roads and village road links with the levels of investments in general and in agricultural sector in particular. Agricultural productivity was also comparatively higher in districts with relatively higher proportion of villages connected by roads. Greater availability of electricity as well as institutional finance appear to have made a significant impact on agricultural productivity. As regards the growth of

Table 33 : Road Density in Association with Selected Indicators of Development

Selector Indicators	Indicators of road Density	
	Length per unit of area, 1975	Village below 1 km. from pucca road(%)
1. Percentage of Electrified Villages, 1976.	0.49 **	0.65 **
2. Number of banking units per unit of population, 1973	0.57 **	0.28 *
3. Plan expenditure on Agriculture		
3.1 per hectare of net area sown	0.45 **	0.14
3.2 per agricultural worker	0.41	0.17
4. Total Plan Expenditure per capita, 1974-77	0.09	0.00
5. Short term loan distributed per capita (Rural), 1974-75	0.35 *	0.37 **
6. Commercial bank loans 1975-76		
6.1 per capita to Priority/Weaker Sector	0.37 **	0.20
6.2 Per capita total	0.35 *	0.32 *
7. Percentage of HYV (1972-75)		
7.1 wheat area	0.47 **	0.42 **
7.2 paddy area	0.25	0.32 *
7.3 gross cropped area	0.38 **	0.44 **
8. Percentage of area under Oilseed, Sugarcane & Potato	0.10	0.42 **
9. Mechanisation of agricultural (Index)	0.28	0.61 **
10. Per hectare agricultural productivity 1975-76	0.30 *	0.37 **

Total number of observations (districts) = 51

* Significant at 5% level, ** Significant at 1% level

Significance is based on 't' value.

manufacturing sector, the availability of finance was found to have contributed to it very significantly. The correlation coefficient between the growth rate of manufacturing sector and number of bank units to population ratio works out to 0.28 (significant at 5% level) across all the districts and 0.51 (significant at 1% level) across the districts excluding the Hill region where the nature of the economy is typically different than that of the remaining part of Uttar Pradesh.

Coming to the question as to whether a preferential treatment was given to backward areas in the allocation of funds and how far could they be effective in reducing inter area disparities, let us first locate certain characteristics of backward district economies and associate with them the policy indicators considered earlier. By and large, the cropping pattern and the extent of mechanisation reveal the level of development of agriculture, which is the core sector. Notwithstanding the mechanism of growth, it may also be observed that during the reference period, agricultural productivity was generally higher in wheat areas, compared to that in paddy areas. The coverage of commercial crops and agricultural mechanisation was also greater in wheat areas (Table 34). The tables 35 and 36 depict correlation coefficients between the financial indicators of public policy, described earlier, and the above indicators of agricultural development.

Table 34 : Relationships among Major Characteristics and Performance of Agriculture Across 46 Districts of Uttar Pradesh, excluding Hill Region-(Correlation Coefficients)

Indicators	Indicators as per row Serial Numbers						
	1.1	1.2	1.3	1.4	2	3.1	3.2
1. Percentage of Gross Cropped Area (1972-75) under							
1.1 Paddy	1	-0.60 **	0.08 *	-0.24	-0.26	0.01	-0.23
1.2 Wheat		1	0.37 *	0.46 **	0.31 *	0.32 *	0.50 **
1.3 High Yielding Varieties			1	0.19	0.36 *	0.55 **	0.44 **
1.4 Oilseeds, Sugarcane and Potato				1	0.60 **	0.48 **	0.56 **
2. Index of Mechanisation (1970-71)							
				1	0.56 **	0.65 **	
3. Value of Agricultural Output per hectare at 1960-61 Prices fcr							
3.1 Year 1960-69					1	0.81 **	
3.2 Year 1975-76						1	

* Significant at 5% level; ** Significant at 1% level.

Table 35 : Financial Resource Inflows in Relation to Cropping Pattern and Mechanisation in Agriculture across all 51 Districts (Correlation Coefficients)

Financial Indicators	Percentage of Gross Cropped Area (1975-76) Under				Index of Mechanisation	Value of Output per hectare
	Paddy	Wheat	High Yielding Varieties	Oilseeds, Sugarcane & Potato		
1. Per-capita total Plan Exp. 1974-77	0.21	-0.18	-0.26	-0.30*	-0.13	-0.41**
2. Plan Exp. (Agricultural) 1974-77						-0.01
2.1 Per Capita	0.32*	-0.43**	-0.20	-0.43**	-0.25	-0.19
2.2 Per ha. of Net area Sown	0.38**	-0.49**	-0.08	-0.37**	-0.20	-0.14
2.3 Per agricultural worker	0.25	-0.35*	-0.16	-0.36	-0.23	-0.21
3. Short term Loan (1974-75) per capita-Rural	-0.16	0.22	0.27	0.56**	0.54**	0.14
4. LDB Loan (1975-76)						105
4.1 Per Capita	0.01	0.08	0.45**	0.46**	0.30	0.23
4.2 Per ha. of Net Area Sown	-0.04	0.27	0.23	0.30*	0.29	0.45**
5. Commercial Bank Loans (1975-76) Per capita						0.46**
5.1 Agriculture	0.13	0.18	0.25	0.32*	0.24	0.27
5.2 Priority/Weaker Sectors	0.05	0.15	0.09	0.14	0.03	0.10
5.3 All Sectors	-0.05	0.22	0.18	0.34*	0.22	0.36**

Note : The correlation coefficients

Table 36 : Financial Resource Inflows in Relation to Cropping Pattern and Mechanisation in Agriculture across 46 Districts, excluding Hill Region
(Correlation Coefficient)

Financial Indicators	Percentage of Gross Cropped Area			Index of Mechanisation	Value of Output per hectare
	(1972-75) Under	Paddy	Wheat		
1. Per capita total plan Exp. 1974-77	0.20	-0.43**	-0.18	-0.34*	-0.13
2. Plan Exp. (Agricultural) 1974-77.	0.31*	-0.54**	-0.19	-0.45**	-0.25
2.1 Per capita Scwn	0.39*	-0.57**	-0.05	-0.39**	-0.20
2.2 Per ha. of Net Area Scwn	0.39*	-0.57**	-0.05	-0.39**	-0.20
2.3 Per agricultural Worker	0.21	-0.48**	-0.18	-0.41**	-0.23
3. Short term loan (1974-75) per capita-Rural	-0.26	0.40**	0.23	0.60**	0.54**
4. LDB Loan (1975-76)	0.01	0.08	0.45**	0.46**	0.30*
4.1 Per capita	0.13	0.21	0.34*	0.45**	0.29
4.2 Per ha. of Net Area Scwn	-0.13	0.21	0.34*	0.45**	0.29
5. Commercial Bank Lcans (1975-76) per capita	0.02	0.29	0.37*	0.46**	0.24
5.1 Agriculture	0.01	0.18	0.03	0.09	0.03
5.2 Priority/Weaker Sectors	-0.19	0.29	0.24	0.41**	0.22
5.3 All Sectors	-0.19	0.29	0.24	0.41**	0.22
					10.6

According to table 35 the per capita plan expenditure (1974-77) for all sectors and that on agriculture and allied sectors (including irrigation, animal husbandry, fisheries, Command Area Development etc.) was generally higher in predominantly paddy areas, most of which were relatively backward in terms of the coverage of high yielding varieties and high value crops. The amount expenditure on agriculture and allied sector per hectare of net area sown had highly significant positive correlation coefficient with proportion of gross cropped area under paddy (1972-75) and highly significant negative correlation coefficients with the area proportions of wheat and commercial crops. But so far as short term loans and Land Development Bank loans are concerned, they were in greater demand in districts with wheat as a major crop, greater coverage of high yielding varieties and commercial crops, greater extent of mechanisation and thereby higher levels of agricultural productivity. Commercial bank financing was again greater in districts where agriculture was more commercialised and the productivity levels were generally high. The results depicted in Table 36, which are based on 46 districts observations (excluding the Hill region) are also similar.

The foregoing analysis brings out that in allocation of funds for carrying out various developmental schemes, preference was given to backward areas. A significant proportion of plan expenditure was however incurred on such schemes as general education, medical and health and water supply, which is deemed to have no relationship with economic development

over a short period. There also happens to be some time lag between the expenditure incurred on infrastructural development and actual availability of the facilities, and between the latter and their effective utilisation. Thus, while regional or district-wise distribution of public funds generally favoured the backward areas, it had little significance in the total amount of investments including institutional finance for which the demand was greater in relatively developed areas. As a result, in spite of the emphasis on development of backward areas, the inter-regional and inter-district disparities continued to increase.

Theoretically, there is also a conflict between the approach for State's economic growth and that for reduction in the inter-regional and inter-district disparities. Generally, the backward economies are more tradition bound and, on account of totality of endowmental and socio-economic conditions prevailing there, the rate of return from investments in such areas is generally low. It does not necessarily mean that the efforts of development should be concentrated in relatively developed areas, because catering to the backward areas

implies betterment of the people in majority. Yet it is felt that there is need for more systematic planning for regional district development, so that, given the resource constraints, it becomes possible to visualise a situation where living conditions of the people improve faster and inter-regional disparities are at least kept from widening.

CHAPTER VII

MAIN FINDINGS AND CONCLUSIONS

The main issues following from the broad objectives of the study as stated in Chapter 1, are : District and Regional Income Estimates - nature and quality; Inter-Regional Income Levels and Growth Rates; Regional and Sectoral Effects - the component weights in differences of per capita income across districts; Regional and Sectoral Contributions to Income Levels and Growth Rates; and Factors Associated with Sectoral Growth - an analysis based on inter-district and inter-regional comparisons in terms of various indicators and on correlation coefficients among them. While looking into the factors associated with growth or backwardness of regional economies it was also examined as to whether the policy of the government implied a priority for backward areas and whether could it really bring down the inter-regional differences in per capita income, or keep them from growing. However, as the entire analysis has been carried out at macro-level, the causations could not always be supported by evidences and data, a problem which was inevitable. The main findings and conclusions of the study are as follows.

The District and Regional Income Estimates

For working out a time series of aggregate district/ regional incomes and per capita incomes the estimates of net output computed by the State Statistical Bureau (SSB) were utilised. The SSB estimates pertained only to commodity

producing sectors, namely Agriculture & Allied, Mining & Quarrying and Manufacturing, and were reported at 1960-61 and current prices. Total income of a district was estimated at 1970-71 and current prices, with the help of district-wise and sectorwise price inflators for the commodity sectors on the one hand, and working out income estimates for Construction and Tertiary Sectors separately at 1970-71 and current prices. District-wise population estimates were also worked out on the basis of the growth rates obtaining between the Census years 1971 and 1981, for computation of per capita incomes. District incomes were estimated for the years 1968-69 and 1970-71 to 1975-76 at constant prices of 1970-71 and upto the year 1976-77 at current prices. Regional income estimates were obtained as corresponding aggregates of the district estimates. The regional income estimates were, however, not adjusted to the corresponding State level estimates, since it would mean only some unidirectional and marginal changes in them.

To make a few observations about usefulness and anthesis of these estimates, it may be mentioned at the very outset that, being based on 'income generated' concept, they are more appropriate for a synthesis of regional contributions to the levels and growth rates of the State's economy. The alternative concept of 'accrued income' does more closely refer to economic conditions of the people. Lack of data relating to inter-regional flows has however been the major factor, compelling the adoption of the former concept for estimation of regional incomes so far. Given that, an inter-regional comparison in terms of the reported per capita income

estimates would tend to underscore inter-regional disparities referring to the living conditions of the people.

Second, though per capita income (PCI) is considered to be a powerful indicator for comparing the levels of regional economic development, it is not always compatible with the generally accepted notion of development or backwardness of a region. This is particularly so in a State like Uttar Pradesh exhibiting wide variations in endowmental, demographic and socio-economic characteristics from one region to another. For instance, use of more efficient and productive agricultural technology and industrial growth have been very much restricted in Hill and Bundelkhand regions on account of endowmental conditions. But the PCI level of Hill region was the highest, as supported by earlier estimates also, and of Bundelkhand higher than the Central region. Of course the density of population in the two regions is relatively low. Another factor that adds to the PCI value of these regions is the relatively high proportions of administrative population though it does not necessarily indicate a higher level of development. The correspondence between the regional PCI and their notional hierarchies need, therefore, to be examined separately, to make inter-regional comparisons more meaningful.

Third, and last, it needs to be pointed out that the data span for a geographical (or administrative) sub-unit is relatively narrow, compelling the use of somewhat crude methodological (or procedural) options in the estimational exercise. For certain sectors or sub-sectors, therefore, regional/district income estimates were derived from the corresponding

estimates of State Domestic Product, using some reasonable allocational basis. It does bear on the authenticity of estimates, and thereby also makes desirable to compare the present estimates with those worked out earlier. But such a comparison could not, be well founded in the present context because of differences in time reference, variety of data used and price levels in case of the earlier estimates. Still it may be mentioned that the regional/district income estimates for commodity sectors which were worked out by the State Statistical Bureau involved the so far maximum data and most comprehensive approach. For non-commodity sectors too the computations were done in disaggregated manner, as far as possible. To that extent the regional/district income estimates presented in this report are more reliable than those worked out earlier.

Inter-Regional Income Levels and Growth Rates

Uttar Pradesh comprises five commonly known agro-climatic regions, namely Western, Central, Bundelkhand, Eastern and Hill, and the percentages of State's population represented by these regions are 35, 18, 5, 33 and 4 respectively. The regional and district income estimates show that the phenomena of economic growth in the State was not sufficiently widespread to show up in the State's income growth rate, so that Uttar Pradesh has remained amongst the bottom few in the country in terms of per capita income (PCI) level for quite some time now. In the years 1968-69 and 1975-76, the PCI levels at 1970-71 prices were highest for Hill region (Rs.603 and Rs.703), followed by Western (Rs.502 and Rs.674), Bundelkhand (Rs.448

and 496), Central (Rs.430 and 479) and Eastern (Rs.333 and Rs.329). Inter-district differences in PCI were much more marked.

The inter-regional differences in PCI showed an increase in absolute terms, as evident from the above, as well as in relative terms; generally the regions with a higher PCI level registered a higher income growth rate. Taking into account all the annual estimates, the average annual compound growth rates of total income and PCI were highest for Hill region (4.93 and 2.45) except for the PCI growth rate, followed by Western (4.82 and 2.52), Bundelkhand (4.19 and 1.97), Central (3.54 and 1.55) and Eastern (1.76 and -0.96) during the period 1968-76. The relationship between initial PCI level and income growth rate across districts was also positive, but not so strong, possibly because district economies are relatively more open and influenced by external factors. Noteworthy, however, is the fact that even without a perceptible growth in the state's economy, the inter-regional disparities have increased considerably. The situation calls for greater attention to development of backward regions, making it necessary to identify the factors responsible for differences in performance of the regional economies. In this context it was worthwhile to examine as to what extent did the PCI differences prevail on account of 'regional' factors, which are more or less given for a period of time, and structural (implied as sectoral) factors.

Regional and Sectoral Effects

Our analysis showed that inter-regional differences in PCI have been mainly due to the so called 'regional' factors. An exercise of decomposition of district to State differences in PCI at a point of time revealed that 90 per cent of PCI differences, on an average, existed on account of differences in aggregate productivity (total income per worker). The variation in aggregate productivity, in turn, was explained to the extent of 95 per cent by 'regional' and 'sectoral' factors. Further, the contribution of 'regional' effect in it was twice that of the 'sectoral' effect. Here, the 'regional' factors are those which bear on conduciveness of a region to economic growth and are referred to in terms of geographical, demographic, cultural and socio-economic characteristics that or more or less given over a period of time. Related with these, yet deserving cognisance, is another group of factors, named as 'sectoral' factors, which count on the peoples' capabilities and choices and availability of worthwhile options of investments. These factors are reflected by economic profile and structure, resulting, in turn, from sectoral incomes and productivity levels. The weights assumed by the components of regional and sectoral effects in the analysis were clearly different across regions. Except for Central region, the regional effect was found to be more important in determining the economic status of individual regions.

It may be pointed out here that because of very complex nature of the inter-dependencies and sequential causations on the one hand and externalities on the other, factor contribu-

tions to inter-regional disparities can not be measured in an absolute sense. However, an attempt was made in this direction for broad understanding of the phenomena of regional economic development and for policy purpose. The results show that, to a large extent, the inter-regional differences in PCI level were due to the differences in the levels of production technologies, which may be attributed to 'regional' factors. A regional economy was backward in terms of PCI also because it lacked activities involving higher order of technologies, as revealed by the component of 'sectoral' effect. A logical explanation to the existing PCI hierarchy would require more specific analysis of sectoral growth and factors associated with them. To make it more useful for bringing objectivity and selectivity in the approach for development of backward regions and the State as a whole, the following issues were examined : what have been the regional contributions to the State's total and sectoral income levels and growth rates? Which were the key sectors leading to economic growth? And, which were the major factors inhibiting development of these sectors in backward regions?

Regional and Sectoral Contributions to Income Levels and Growth Rates :

So far regional contributions to the State's economy are concerned, the Western region came on top with its share in State's total income at 41 per cent in 1968-69 and 43 per cent in 1975-76 and in the States total income growth rate to an extent of over 54 per cent. The corresponding percentages for the most populated Eastern region were about 30, 27 and 14 while

those for Central region (with a population size smaller than of Western and Eastern regions) were about 18 per cent each. The significance of Bundelkhand and Hill regions in the State's economic development has been relatively low and, at the same time, the scope for development of these regions was very much limited on account of endowmental conditions. Taking in view the regional PCI levels, much greater attention was required for development of Eastern region to achieve faster growth rate of the State's economy and reducing inter-regional disparities.

Among sectors, agriculture and manufacturing were found to be most crucial for total income or PCI growth rate. Given the economic structure, the growth of agricultural sector was closely associated to the PCI growth. But in that process, the non-agricultural sector, particularly manufacturing, grew relatively faster. The growth of tertiary sector, though larger in size as compared to manufacturing sector, was found to be weakly associated with PCI growth. In fact the relative size of tertiary sector did not come out to be an appropriate indicator of economic development because on the one hand it was guided by the proportion of administrative population and, on the other, the institutional facilities are also provided by the government in economically backward areas as a matter of policy for meeting their developmental requirements. These observations, which are based on an inter-district analysis of sectoral structure and PCI growth rates, get support also from inter-regional comparisons and provide a basis for explaining the inter-regional disparities in terms of the performance of

agriculture and manufacturing sector. In a situation like this, the inter-regional and inter-district differences in PCI levels and growth rates are attributable mainly to the factors associated with growth of agricultural and manufacturing sector. The growth of agricultural sector is important on account of its size and of manufacturing sector due to its relatively high growth rate, in general, resulting possibly from use of relatively higher levels of technology, accrual of greater surplus per unit of production and hence higher rate of capital formation.

Factors Associated with Sectoral growth Rates

For identification of factors responsible for inter-regional differences in incomes, correlation co-efficients among various indicators of regional characteristics, infrastructural development and economic progress were worked out across districts and examined with particular reference to growth rates of PCI, agricultural sector and manufacturing sector. The PCI growth rate was found to be negatively associated with the proportion of economically active population and proportion of income from agricultural sector, and positively associated with agricultural growth rate, relative contribution to total income from and growth rate of manufacturing sector and the proportion of urban population. It indicates that in relatively backward areas, with low levels of agricultural technology and productivity, the supply of labour tends to increase due to pressure on the poor households to supplement their incomes. Capital formation in such areas

is likely to be small and income levels generally low, resulting into slow economic growth or stagnation. The growth of manufacturing sector and urbanisation appeared to get support from each other, contributing positively to PCI level. Also there was an evidence of a positive interaction between agricultural development and small (unregistered) manufacturing sector. But then, since the phenomena of development was not sufficiently widespread, the inter-sectoral linkages were generally weak.

As regards agricultural growth, increase in productivity per unit of land was its major source during the reference period. The growth in agricultural productivity was led mainly by shifts in cropping pattern in favour of commercial crops, followed by increase in crop yield rates. Coverage of irrigation in general, and tubewell irrigation in particular, was a major factor enabling the switch over from subsistence agriculture to use of modern inputs, mechanisation and commercialisation. Increase in cropping intensity, appeared to have been resorted to mainly by small farmers as the second and less efficient alternative for increasing agricultural productivity. Barring exceptions, the areas with larger landholdings were benefited more from the technological progress and cropping pattern shifts. The growth of manufacturing was, on the other hand, positively associated with the level agricultural productivity, availability of infrastructure like road transport and electricity, and most significantly with the availability of institutional finance. Within manufacturing the growth of small (unregistered) sector was found to be

positively related with agricultural growth rate. But the lead in terms of growth rate was provided by the large manufacturing sector. The main conclusions emerging from the above are as follows.

For growth of agriculture, coverage and quality of irrigation and size of landholdings were the crucially important factors. The reasons for uneven distribution of irrigation facilities need therefore be examined. Except for irrigation, infrastructural facilities like availability of roads and electricity to villages were also not of much relevance to agricultural growth. Availability of institutional finance did however make a positive impact towards commercialisation. The difference in regional agricultural profiles and growth rates owe, to endowmental conditions to a great extent. The growth of manufacturing sector, on the other hand, depended more on economic factors like economic conditions of the people in general, scale and technology of production and availability of institutional finance. The growth of small manufacturing sector was to some extent an integral part of overall change in the economic situations in a region, led by agricultural development. But the large scale industrial sector grew at a faster rate for it has a wider demand base and uses relatively higher level technologies. Lastly, for growth of the economy as a whole, the infrastructural and institutional facilities were found to be crucially important as a package and much less individually. Save for irrigation, road infrastructure was however most

important in facilitating the conduct of development programmes and projects that are essential for economic development.

It may be mentioned that the proportion of electrified villages,

coverage of commercial banks and inflow of the institutional finance were greater in districts with higher density of roads and proportion of villages connected by roads. This is important because the availability of institutional finance, was found to have contributed to use of better technology and commercialisation of agriculture and growth of industrial sector.

Within the above framework and in the background of the commonly known characteristics of the regions, the factors associated with economic situation of the backward/problem regions, namely Hill, Bundelkhand and Eastern, may be brought out more specifically. In hill areas, while the land holdings are small, with hardly any scope for irrigation development and mechanisation, the agricultural technology remains age-old. To certain extent, increase in cropping intensity added independently to production per unit of land, obviously involving more of labour input. Preparation of land and its maintenances in the region is arduous and involves still greater amount of human labour. In other words, agriculture in hill areas suffers on account of the lowest order of technology being used there. A change in this situation is, however, difficult to visualise. Sparsely populated small rural settlements, lack of physical infrastructure and high cost carrying out construction and other development projects and programmes have also been crucial factors responsible for economic backwardness of

the Hill region. For the above reasons, industrial activities in the region could not gain grounds except for the continued existence of the households sector catering mainly to the local demand. It is interesting to note that, inspite of the economic backwardness outlined above, the PCI of the region was found to be relatively high. Some explanations to it are as follows. First, density of population of the region is the lowest, being about one-fourth of that for the State. Second, agricultural and industrial production in hill areas seem to involve much less of financial cost so that the value of net output gets inflated. Third, unlike other regions, the proportion of economically active population in hills is relatively high and is positively associated with income level. The situation prevails because an increase in production without technological advancement is possible only with a greater proportion of workers, which is further so because of outmigration of male workers and involvement of females in economic activities.

In Bundelkhand, the physical resource conditions for agriculture are poor and somewhat similar to those of Hill region, though not so stringent. Preparation of land for cultivation in the region is yet arduous, moisture retention capacity of the soil as well as rainfall are lowest among all regions, while tubewell irrigation is conspicuous. Agricultural profile of the region is thereby very poor with lowest yield rates of major crops, namely of wheat and rice as compared to the other regions, and relatively high proportion of area under coarse grain crops. Lack of irrigation was a

crucial factor for this continuing state of agriculture, and hence for the economy as a whole being divorced from the endogenous forces of diversification and growth. The industrial profile of the region was thus much below the mark with a very low proportion of income from industrial sector, represented mainly by the household sector and exhibiting a rate of growth lowest of all regions. These aspects however need to be examined in a wider framework.

Lastly, the economy of the Eastern region suffered mainly due to small and uneconomic landholdings, frequent occurrences of droughts and floods and the tradition of rainfed cropping. About 90 per cent of the cultivators in the region are small and marginal landholders. Maldistribution of land has also been a bottleneck to the development of the rural society. Notably, the proportion of economically active population is relatively high, indicating an excess supply of labour in the rural areas due to pressure on the poor households to supplement their incomes. A situation like this would normally imply low wages, considerable amount of seasonal migration and a low rate of capital formation, which however needs to be examined in greater details separately. The industrial growth in the region seems to be suffering mainly from socio-economic factors, as the growth rate agricultural sector was lowest of all the regions. It is deemed that if there is a perceptible increase in the pace of agricultural development of the regions, it would also lead to economic diversification and faster industrially growth in the region on the one hand and a

perceptible increase in the State's economic growth.

Inter-Regional Development : Policy and Constraints

It is important here to take note of what has been the role of the government policy for meeting the objectives of the State's economic growth and reduction in inter-regional disparities. For an exploration in this direction the following two issues were considered : whether the government policy implied a preferential treatment of backward regions? And, has there been any positive impact of the ongoing regional policies on inter-regional disparities? These issues were examined with the help of analysis of selected indicators of the pattern of financial inflows and progress of infrastructural facilities, worked out for different regions and districts. The financial indicators were based on figures of annual plan expenditure, financing by commercial banks and U.P. State Co-operative Land Development Bank and the distribution of short term loan. The infrastructural and institutional facilities were depicted by density of roads, percentage of villages connected by road, proportion of villages electrified and number of Bank units per lakh of population. Following are the main conclusions, which emerged from the exercise.

First, there appeared to be lack of a clear-cut policy for distribution of plan funds among regions and districts, though the per capita allocation was generally higher for backward areas. There the Bundelkhand and Eastern regions were relati-

vely ignored, yet on the whole the data provides evidence of the policy of giving preference to backward areas. Second, as regards the institutional finance, it was in greater demand in relatively developed areas, and in that sense opposed to the regional pattern of allocation of plan funds. As a result the regional pattern of resource inflows (public expenditure and institutional finance) was greater in relatively developed areas inspite of a policy of preference for backward areas. Third, also following from the above, the inter-regional disparities showed increase during the reference period. The situation may be attributed to the poor availability of development finance with the government. Fourth, and last, there is also a conflict between the approach for the State's economic growth and that for reduction in inter-regional disparities. Generally the backward economics are more tradition bound and on account of the totality of endowmental and socio-economic conditions prevailing there, the rate of return on investments is generally low. A greater allocational priority for backward areas might then be at the cost of the State's economic growth. The resources at command with the government were perhaps insufficient for a perspective of a minimum desirable economic growth rate and a reduction in inter-regional disparities. Yet there appears to be the need for more systematic planning for regional/district development. Mentionable here is the case of Bundelkhand region which has

been most ignored, followed by Eastern region during the period of study. It may also be noted that if agricultural sector of the Eastern region alone grows at a rate obtaining for Uttar Pradesh, during the reference period, it would imply not only a reducting in inter-regional disparities but also a growth rate for the State's economy of 5 to 6 per cent, a long standing objective through plans.

NOTES AND REFERENCES

1. Government of India, Ministry of Finance, Department of Economic Affairs, Final Report of the National Income Committee, New Delhi, 1954, p.1.
2. Beginning with Dadabhai Naoroji's attempt in 1876 for the reference year 1868, Poverty and Un-British Rule in India, London, 1901, several others came in, notable among these being F.J. Atkinson (1902), K.T. Shah and K.J. Khambatta (1924), VKRV Rao (1939) and R.C. Desai (1953). See Nirmal Kumar Chandra, "Long-Term Stagnation in Indian Economy, 1900-75, Economic and Political Weekly, Vol.XVII, Nos.14, 15 & 16, Annual Number 1982. The past attempts are listed in B.W. Chavan and Amita Chavan, National Income in India Concepts and Methods, Sindhu Publications, Bombay, 1970.
3. Madras Year Book 1923 published the State Income for Madras, the first in India. The estimates were worked out by Dr. G. Slater, see B.W. Chavan and Amita Chavan (1970), op.cit. (2).
4. S.G. Tiwari (1951), "Economic Prosperity of the United Provinces - A Study in the Provincial Income and Its Distribution and Working Conditions, 1921-39".
5. The first well founded estimates of State Income were brought out in India by the State Statistical Bureau (Bombay) for the Bombay Province for the year 1948-49. See B.W. Chavan and Amita Chavan (1970), op.cit (2). In Uttar Pradesh, the Directorate of Economics and Statistics, Government of U.P. also took up the task beginning the reference year 1948-49.
6. NCAER (1963), Occasional Papers No.6, "Inter-District and Inter-State Income Differentials - 1955-56".
7. Baljit Singh (1974), "Inter-District Incomes and Economic Profiles of Uttar Pradesh", Lucknow University, Lucknow, (mimeo).
8. A.K. Singh (1981), Patterns of Regional Development, A Comparative Study, Sterling Publishers, New Delhi.
9. State Planning Institute, Economics and Statistics Division, Government of U.P., Lucknow (1978), Bulletin No.166, "District Domestic Output, Uttar Pradesh (Commodity Producing Sectors), 1960-61, 1968-69 and 1970-71 to 1973-74"
10. The percentage share of the non-commodity sector in the total income as revealed by different estimates are : NCAER, reference year 1955-56. tertiary sector 24.70 in district Banda to 64.89 in Lucknow (All districts 40.81); Baljit Singh, 1970-71, 15.96 in district Kheri to 65.76 in Dehradun; and among the 33 eastern and western districts of U.P., A.K.Singh, 1971, 14.7 in Deoria to 42.4 in Allahabad.

11. For instance, by per capita income in 1970-71, the top 5 districts according to Baljit Singh (1974) were Dehra Dun, Naini Tal, Meerut, Muzaffarnagar and Saharanpur in descending order, but the ranks of the latter 3 districts, covered by A.K. Singh (1981), come to 5, 1 and 4 respectively. Similarly, the bottom 5 districts as per Baljit Singh's estimates were Ballia, Jaunpur, Azamgarh, Pratapgarh and Basti in descending order. All these districts were covered by A.K. Singh, but according to his estimates the bottom 5 districts arranged in that order were Jaunpur, Sultanpur, Ballia, Bahraich and Sultanpur. The district income levels are not comparable because of the price differences. The examples cited at (10) also exhibit considerable amount of inter-estimate variations.
12. NCAER (1963), op. cit (5)
13. Baljit Singh (1974), op.cit (6)
14. A.K. Singh (1981), op.cit (7)
15. State Planning Institute, op. cit (9)
16. State Planning Institute (1978), op cit (9), State Planning Institute (1979), "District Domestic Net Output, Uttar Pradesh (Commodity Producing Sector), 1974-75 and 1975-76", Bulletin No.166 and Records of the State Planning Institute.
17. NCAER (1963), op cit (5)
18. State Planning Institute (Economics and Statistics Division), Government of U.P. (1978), "Methodology of Estimating District Domestic Net Output, Uttar Pradesh (Commodity Producing Sectors.)
19. Bakul H. Dholakia and Ravindra H. Dholakia (1978), "Urban-Rural Income Differences in India : An Inter-Regional Analysis", Indian Journal of Industrial Relations, Vol.14, No.2, October 1978.
20. State Planning Institute (Economics and Statistics Division, Government of Uttar Pradesh (1977), "Methodology of State Income Estimates of Uttar Pradesh (Revised Series)".
21. Government of U.P. (Planning Department), Draft Sixth Five Year Plan 1980-85 (Review), Vol.1, November 1981, pp.4-5.
22. M.S. Bhatia and R.C. Sinha : "Alternative Growth Rates to Reduce Disparity, Per Capita Income of U.P. and India", The Economic Times, Bombay, November 12, 1973.
23. Government of Uttar Pradesh (Planning Department), Fourth Five Year Plan, Uttar Pradesh, 1969-73, (Draft), 1969.

24. Government of U.P. (Planning Department), Fifth Five Year Plan 1974-79 (Draft).

25. While the wholesale price index (1957-58 = 100) of food-grains increased marginally from 200.4 in 1968-69 to 201.2 in 1970-71, the general agricultural wholesale price index was 220.9 in 1968-69 and 205.2 in 1970-71, showing a decline. Similarly, the general index of wholesale prices for industrial commodities in Uttar Pradesh (1948 = 100) was 246 in 1969, 220.2 in 1970 and 222.2 in 1971. See State Planning Institute, Economics and Statistics Division, Government of U.P., Statistical Abstract, Uttar Pradesh, 1973-74, Bulletin No.152, pp.75-76.

26. The average annual compound growth rate (r) defined in percentage terms was computed taking into account all the observations in a time series, using the following expression

$$r = \left[\text{Anti log} \left\{ \left(\sum_t \log x_t - N \log x_0 \right) / N (N-1)/2 \right\} - 1 \right] \cdot 100$$

where x_t is the observation for year t , $t = 0, 1, \dots, N-1$, and N the total number of observations.

The growth rate of income is based on the estimates at constant prices of 1970-71, over the period from 1968-69 to 1975-76. As the income estimates for commodity producing sectors were not available for the year 1969-70, this observation gap was filled in for the purpose of computing growth rates by taking arithmetic average of the estimates for the years 1968-69 and 1970-71.

27. State Income Estimates, Uttar Pradesh, 1960-61 to 1974-75, Bulletin No.157, State Planning Institute, Government of Uttar Pradesh (Undated), p.37.

28. Baljit Singh, op cit (7)

29. Based on State Income Estimates, op cit (31), p.46.

30. R.S. Mathur : Economic Development and the Tertiary Sector, Indian Journal of Industrial Relations, Vol.8, No.1, July 1972.

31. Agricultural Statistics of U.P. and Other States, Perspective Planning Division, State Planning Institute, Government of Uttar Pradesh, 1978 (mimer).

32. Government of U.P., op cit (21), pp.166-171.

33. The gross value of output of agriculture was estimated at Rs.2394.17 crores in 1968-69, Rs.2664.30 crores in 1972-73, Rs.2656.70 crores in 1975-76 and Rs.2879.22 crores in 1976-77. Source : State Income Estimates, Bulletin No.186, Economics and Statistics Division, State Planning Institute, Government of Uttar Pradesh, February 1982.

34. V.N. Misra : Anatomy of Agricultural Growth in T.S. Papola et. al., Studies on Development of Uttar Pradesh, Giri Institute of Development Studies, Lucknow 1979. It may be mentioned here that the component of 'area' in V.N. Misra's decomposition model refers to total cropped area. Change in total cropped area while net area sown remaining the same, reflects similar change in cropping intensity in proportional terms.
35. Inter-district comparisons suggest that increases in agricultural productivity beyond a certain level, lead to a diversification of rural economy in favour of non-agricultural activities. This finding is based on an analysis of secondary data across districts of Uttar Pradesh for the year 1970-71. See R.C. Sinha, Agricultural Development and Rural Employment, in T.S. Papola and others, Studies on Development of Uttar Pradesh, Giri Institute of Development Studies, Lucknow, 1979.
36. R.C. Sinha : An Analysis of Direct and Indirect Effects of Income Generation Through Different Sectors of the Economy of U.P., in Training of Personnel for Development Administration - Issues in State Planning, Collection of Papers, Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi, 1977 (mimeo). The study examines income multipliers of different sectors of the economy of U.P., based on the Input-Output table of the State. 'Structure of the Economy of Uttar Pradesh, 1970-71, Perspective Planning Division, State Planning Institute, Uttar Pradesh Government, Lucknow 1975.

ANNEXURE-1
Regional And District Income Estimates At Constant
Prices Of 1970-71

(Crore Rs.)

District/Region	1968-69	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
0	1	2	3	4	5	6	7
1. Agra	116.73	136.09	137.65	142.63	134.59	138.56	147.56
2. Aligarh	99.97	124.64	119.46	125.72	116.40	116.60	122.82
3. Budaun	49.18	73.99	63.67	70.33	61.14	64.31	65.92
4. Bareilly	90.45	101.26	98.83	103.89	103.46	116.70	114.28
5. Bijnor	80.79	94.65	96.74	96.07	95.70	103.27	103.05
6. Bulandshahr	89.17	112.42	107.99	118.61	105.05	114.38	112.99
7. Etah	56.27	79.07	60.44	66.73	64.92	67.00	72.03
8. Etawah	56.50	68.35	58.33	64.83	62.98	66.32	72.91
9. Farrukhabad	59.14	69.92	62.39	65.66	63.41	60.67	73.93
10. Mainpuri	56.38	61.82	54.10	63.59	57.09	65.55	64.12
11. Mathura	68.92	82.22	79.44	79.92	76.88	76.15	79.84
12. Meerut	198.53	247.32	245.86	264.15	255.77	270.21	283.41
13. Moradabad	100.21	131.35	120.17	133.20	132.23	135.22	141.40
14. Muzaffarnagar	93.88	114.69	119.32	123.59	108.25	126.16	132.02
15. Pilibhit	44.29	46.01	42.21	49.04	46.87	55.56	58.50
16. Rampur	45.64	50.49	41.39	48.41	50.19	52.88	52.23
17. Saharanpur	127.57	141.57	152.83	170.66	168.90	92.51	214.99
18. Shahjahanpur	63.73	66.95	61.87	60.20	63.49	68.83	73.71
<u>WESTERN REGION</u>	<u>1497.34</u>	<u>1802.80</u>	<u>1722.70</u>	<u>1847.21</u>	<u>1767.33</u>	<u>1891.87</u>	<u>1985.71</u>
19. Barabanki	57.27	60.00	57.25	56.71	56.66	60.10	68.34
20. Fatehpur	43.02	49.95	46.28	48.34	48.66	59.14	55.53
21. Hardoi	63.88	77.42	63.39	73.24	68.02	70.76	73.64
22. Kanpur	169.74	205.90	195.37	218.41	215.07	236.33	241.05
23. Kheri	67.54	74.03	63.86	71.92	72.91	74.30	76.02
24. Lucknow	91.81	108.59	107.62	112.12	111.04	111.13	121.51
25. Rae Bareli	56.91	59.60	57.14	60.23	57.50	55.30	59.97
26. Sitapur	65.20	71.56	68.51	70.94	71.55	73.87	75.13
27. Unnao	46.87	61.25	56.56	49.82	56.21	52.83	61.28
<u>CENTRAL REGION</u>	<u>662.25</u>	<u>678.29</u>	<u>715.98</u>	<u>761.74</u>	<u>754.67</u>	<u>783.75</u>	<u>832.46</u>
28. Banda	45.87	57.45	53.64	63.34	56.26	49.60	63.45
29. Hamirpur	42.96	48.31	48.39	58.25	50.37	46.87	50.79
30. Jalaun	32.65	35.89	35.36	41.53	40.79	43.66	45.37
31. Jhansi & Lalitpur	61.45	70.38	66.43	73.36	72.13	66.05	76.75
<u>BUNDELKHAND REGION</u>	<u>182.93</u>	<u>212.05</u>	<u>203.82</u>	<u>236.47</u>	<u>219.55</u>	<u>206.18</u>	<u>236.37</u>

Annexure-1 (Contd.)

	0	1	2	3	4	5	6	7
32. Allahabad	105.45	133.80	131.75	116.97	169.57	132.75	157.17	
33. Azamgarh	65.07	78.11	75.06	71.67	72.06	76.86	81.35	
34. Bahraich	65.94	63.95	54.83	61.86	57.58	57.64	66.01	
35. Ballia	48.60	45.54	40.96	45.93	41.73	39.89	47.07	
36. Basti	98.02	95.91	90.22	94.71	80.91	84.55	93.91	
37. Deoria	82.27	88.16	75.95	78.63	66.95	84.90	95.70	
38. Faizabad	56.84	66.42	61.89	55.43	52.28	52.71	61.53	
39. Ghazipur	41.77	48.08	48.85	46.60	45.45	41.32	51.43	
40. Gonda	81.35	81.00	71.84	81.10	81.86	76.81	81.37	
41. Gorakhpur	104.92	116.21	113.22	108.11	105.77	110.74	126.04	
42. Jaunpur	53.96	60.38	51.94	61.00	54.05	52.70	63.55	
43. Mirzapur	64.32	80.38	66.76	69.04	70.33	73.49	84.15	
44. Pratapgarh	37.27	42.76	37.72	35.44	35.93	34.84	40.36	
45. Sultanpur	53.98	58.32	58.99	53.05	54.31	51.42	54.80	
46. Varanasi	112.48	136.73	138.26	132.93	142.01	137.72	150.69	
<u>EASTERN REGION</u>	1072.24	1195.76	1118.24	1112.46	1130.61	1108.33	1255.12	
47. Almora & Pithoragarh	38.41	56.45	48.99	54.91	55.87	58.37	60.01	
48. Dehradun	43.17	44.73	50.00	52.49	51.73	55.62	60.07	
49. Garhwal & Chamoli	53.87	39.02	45.70	51.72	51.09	57.69	54.43	
50. Nainital	62.48	89.54	67.66	77.45	83.05	65.02	92.07	
51. Tehri & Uttarkashi	20.70	27.97	30.50	35.77	32.94	33.27	39.60	
<u>HILL REGION</u>	218.63	257.71	242.85	272.33	274.69	269.98	306.18	
<u>JTTAR PRADESH</u>	3633.39	4236.62	4003.60	4230.20	4146.86	4260.11	4615.85	

ANNEXURE-2Regional And District Income EstimatesAt Current Prices

(Crore Rs.)

District/Region	1968-69	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	
	0	1	2	3	4	5	6	7	8
1. Agra	113.01	136.09	141.35	171.58	188.61	224.38	231.71	275.63	
2. Aligarh	97.35	124.64	121.84	160.98	172.61	198.37	191.78	214.78	
3. Budaun	62.78	73.99	75.86	94.13	104.50	116.98	109.05	129.24	
4. Bareilly	87.21	101.26	107.23	125.83	146.19	187.00	175.31	200.07	
5. Bijnor	84.89	94.65	99.16	127.25	142.58	174.29	163.07	169.67	
6. Bulandshahr	88.99	112.42	117.91	147.53	150.00	182.12	172.48	181.24	
7. Etah	59.82	79.07	71.44	946.96	107.88	129.78	119.93	125.66	
8. Etawah	55.65	68.35	67.58	820.46	97.66	114.97	102.78	108.40	
9. Farrukhababad	55.79	69.92	69.35	83.50	99.01	106.87	122.47	125.87	
10. Mainpuri	58.28	61.82	55.62	82.57	87.72	112.88	102.59	120.80	
11. Mathura	61.58	83.33	74.22	99.48	107.97	120.71	115.98	131.26	
12. Meerut	211.76	247.32	267.78	343.39	368.53	446.09	457.86	503.64	
13. Moradabad	111.08	131.35	136.97	168.38	189.09	228.33	229.90	257.40	
14. Muzaffarnagar	111.79	114.69	132.75	170.12	181.10	212.85	204.77	232.76	
15. Pilibhit	44.18	46.01	49.05	65.83	72.38	85.97	88.09	96.87	
16. Rampur	44.68	50.49	44.50	61.35	76.96	87.15	82.22	95.26	
17. Saharanpur	134.24	141.57	157.77	218.43	241.68	313.65	335.03	327.13	
18. Shahjahanpur	58.90	66.95	72.65	75.90	93.26	111.33	113.90	126.17	
WESTERN REGION	1542.00	1802.80	1863.03	2373.58	2627.75	3153.72	3118.92	3421.86	
19. Barabanki	56.65	60.00	66.73	80.61	97.89	115.70	112.23	122.10	
20. Fatehpur	39.89	49.95	46.85	63.42	74.61	81.15	77.64	94.90	
21. Hardoi	64.61	77.42	69.37	101.00	109.14	123.72	120.43	131.98	
22. Kanpur	167.00	205.90	205.23	371.25	312.46	399.72	401.34	436.79	
23. Kheri	75.53	74.03	78.95	105.30	127.04	133.28	122.73	134.48	
24. Lucknow	90.91	108.59	119.16	136.21	156.53	185.46	208.15	233.71	
25. Rae Bareli	50.25	59.60	62.15	76.71	86.58	100.71	90.54	107.92	
26. Sitapur	70.42	71.56	83.60	98.70	137.01	141.62	129.67	139.11	
27. Unnao	50.63	61.25	65.48	71.95	96.54	104.04	102.16	97.92	
CENTRAL REGION	665.86	768.29	797.51	1005.15	1197.79	1385.41	1364.87	1498.92	
28. Banda	45.32	57.45	53.39	81.78	85.20	79.92	89.77	99.47	
29. Hamirpur	40.48	48.34	46.80	74.94	73.39	68.36	66.97	84.81	
30. Jalaun	33.37	35.89	36.38	53.98	63.58	64.92	63.90	75.50	
31. Jhansi & Lalitpur	60.41	70.40	66.07	87.06	106.45	108.70	118.41	139.39	
BUNDELKHAND REGION	179.58	212.05	202.64	297.76	328.61	32.89	339.03	399.17	

Annexure-2 (Contd.)

0	1	2	3	4	5	6	7	8
32.Allahabad	104.73	133.80	148.26	184.63	209.52	238.18	262.80	295.98
33.Azamgarh	65.81	78.11	88.20	101.14	117.12	153.17	143.14	152.24
34.Bahraich	58.38	63.95	63.88	73.19	85.14	94.95	92.37	101.17
35.Ballia	49.09	45.54	53.25	60.18	70.57	77.05	75.08	88.00
36.Basti	93.25	95.91	96.10	122.73	126.10	159.42	140.34	151.00
37.Deoria	88.44	88.16	95.84	117.90	120.09	158.79	156.00	157.04
38.Faizabad	62.72	66.42	87.47	78.97	95.51	118.10	122.13	114.15
39.Ghazipur	43.37	48.08	61.44	63.31	76.08	79.62	84.12	96.80
40.Gonda	81.19	81.00	84.94	107.84	130.14	138.38	121.54	130.66
41.Gorakhpur	105.97	116.21	126.77	145.27	165.37	211.97	213.33	206.83
42.Jaunpur	54.56	60.38	58.93	81.67	98.14	110.04	107.69	117.14
43.Mirzapur	67.76	80.38	70.27	94.25	112.92	130.35	139.00	155.14
44.Pratapgarh	43.89	42.76	56.96	54.29	71.01	76.49	72.45	79.60
45.Sultanpur	48.79	58.32	79.01	70.85	86.46	97.02	78.41	89.38
46.Varanasi	114.02	136.73	145.13	166.97	206.19	238.23	251.14	280.05
<u>EASTERN REGION</u>	1081.98	1195.76	1317.10	1523.18	1770.35	2081.77	2059.42	2215.19
47.Almora & Pithoragarh	38.00	56.45	49.05	66.59	54.08	100.09	93.43	101.23
48.Dehradun	40.73	44.73	54.13	59.93	69.35	88.57	99.10	109.69
49.Garhwal & Chamoli	47.61	39.02	40.05	52.27	67.04	95.13	75.17	83.79
50.Nainital	67.63	89.54	73.22	101.43	126.03	131.72	135.97	147.84
51.Tehri & Uttarkashi	22.79	27.97	31.56	41.14	50.06	58.54	58.70	48.21
<u>HILL REGION</u>	216.75	257.21	248.01	321.35	396.56	474.06	462.38	490.75
<u>UTTAR PRADESH</u>	3686.17	4236.62	4428.29	5521.04	6321.07	7416.84	7344.64	8025.89

ANNEXURE-3

Estimated Population of Districts and Regions
for the years 1968-69, 1972-73, 1975-76
and 1976-77

District/Region	(Number in thousand)			
	1968-69	1972-73	1975-76	1976-77
0	1	2	3	4
1. Agra	2190	2385	2539	2593
2. Aligarh	2021	2176	2301	2345
3. Budaun	1584	1691	1780	1811
4. Bareilly	1700	1846	1981	2028
5. Bijnor	1410	1548	1668	1710
6. Bulandshahr	1984	2113	2189	2216
7. Etah	1499	1608	1682	1708
8. Etawah	1377	1490	1573	1603
9. Farrukhabad	1487	1611	1721	1759
10. Mainpuri	1375	1484	1561	1589
11. Mathura	1232	1326	1400	1425
12. Meerut	3192	3488	3771	3872
13. Moradabad	2308	2527	2832	2906
14. Muzaffarnagar	1706	1868	2002	2051
15. Pilibhit	716	786	858	883
16. Rampur	847	938	1014	1042
17. Saharanpur	1936	2137	2308	2368
18. Shahjahanpur	1246	1335	1436	1471
WESTERN REGION	29810	32357	34616	35380
19. Barabanki	1578	1688	1793	1830
20. Fatehpur	1224	1317	1398	1426
21. Hardoi	1777	1909	2027	2070
22. Kanpur	2831	3105	3324	3402
23. Kheri	1426	1551	1683	1729
24. Lucknow	1544	1667	1778	1817
25. Rae Bareli	1460	1562	1667	1705
26. Sitapur	1813	1946	2072	2116
27. Unnao	1416	1531	1625	1659
CENTRAL REGION	15069	16276	17367	17754
28. Banda	1121	1229	1328	1362
29. Hamirpur	936	1017	1074	1094
30. Jalaun	773	837	886	902
31. Jhansi & Lalitpur	1250	1364	1477	1518
BUNDELKHAND REGION	4080	4447	4785	4876

Annexure-3 (Contd.)

	0	1	2	3	4
32.	Allahabad	2805	3056	3299	3386
33.	Azamgarh	2740	2951	3142	3209
34.	Bahraich	1668	1794	1932	1980
35.	Ballia	1522	1636	1730	1763
36.	Basti	2892	3068	3232	3290
37.	Deoria	2697	2918	3144	3223
38.	Faizabad	1850	1988	2110	2154
39.	Ghazipur	1477	1587	1701	1742
40.	Gonda	2243	2383	2549	2607
41.	Gorakhpur	2914	3142	3352	3427
42.	Jaunpur	1933	2076	2222	2273
43.	Mirzapur	1463	1608	1746	1795
44.	Pratapgarh	1378	1475	1582	1620
45.	Sultanpur	1583	1697	1808	1846
46.	Varanasi	2722	2965	3198	3279
<u>EASTERN REGION</u>		31887	34344	36747	37594
47.	Almora & Pithoragarh	1019	1119	1271	1326
48.	Dehradun	536	601	652	670
49.	Garhwal & Chamoli	817	866	906	920
50.	Nainital	730	833	925	959
51.	Tehri & Uttarkashi	525	564	602	616
<u>HILL REGION</u>		3627	3983	4356	4491
<u>UTTAR PRADESH</u>		84473	91407	97851	100095

ANNEXURE-4

Regional And District Per Capita Income Estimates
At Constant Prices Of 1970-71

(Rs.)

District/Region	1968-69	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
0	1	2	3	4	5	6	7
1. Agra	533	596	590	598	553	558	581
2. Aligarh	495	596	516	578	526	516	534
3. Budaun	310	453	239	416	356	368	370
4. Bareilly	532	574	548	563	548	603	577
5. Bijnor	573	642	641	621	603	635	618
6. Bulandshahr	449	547	517	561	492	529	516
7. Etah	375	508	382	415	398	404	428
8. Etawah	410	477	399	435	415	406	463
9. Farrukhabad	398	453	396	407	385	361	430
10. Mainpuri	410	432	371	428	379	427	411
11. Mathura	559	643	610	603	570	554	570
12. Meerut	622	742	724	757	715	736	752
13. Moradabad	434	546	488	527	492	490	499
14. Muzaffarnagar	550	643	654	662	566	645	659
15. Pilibhit	619	618	553	624	579	667	682
16. Rampur	539	567	453	516	522	536	515
17. Saharanpur	659	697	734	799	771	856	932
18. Shahjahanpur	511	523	475	451	464	491	513
WESTERN REGION	502	581	525	571	533	559	574
19. Barabanki	363	369	346	336	329	342	381
20. Fatehpur	351	394	358	367	363	359	397
21. Hardoi	359	422	339	384	350	356	363
22. Kanpur	600	695	644	703	678	728	725
23. Kheri	474	502	423	464	458	454	452
24. Lucknow	595	677	659	673	652	639	683
25. Rae Bareli	390	397	374	386	360	339	360
26. Sitapur	360	383	359	365	360	364	363
27. Unnao	331	417	377	325	341	332	377
CENTRAL REGION	439	492	450	468	454	461	479
28. Banda	409	491	448	515	447	383	478
29. Hamirpur	459	494	490	573	487	445	473
30. Jalaun	422	446	431	496	479	502	512
31. Jhansi & Lalitpur	492	543	501	538	516	459	520
BUNDELKHAND REGION	448	499	470	532	483	443	496

Annexure-4 (Contd.)

0	1	2	3	4	5	6	7
32. Allahabad	376	460	442	383	541	413	476
33. Azamgarh	237	276	260	243	239	250	259
34. Bahraich	395	373	313	345	313	306	342
35. Ballia	319	289	255	281	251	235	272
36. Basti	339	324	299	309	259	266	291
37. Deoria	305	316	267	269	224	277	304
38. Faizabad	307	347	318	279	258	255	292
39. Ghazipur	283	316	315	294	280	249	302
40. Gonda	363	354	308	340	335	308	319
41. Gorakhpur	360	386	368	344	330	338	376
42. Jaunpur	279	303	256	294	255	243	286
43. Mirzapur	440	527	427	429	426	433	482
44. Pratapgarh	270	302	262	240	238	225	255
45. Sultanpur	341	358	355	313	314	291	303
46. Varanasi	413	484	478	448	467	442	471
EASTERN REGION	336	363	333	324	322	309	342
47. Almora & Pithoragarh	377	535	457	491	479	480	472
48. Dehradun	805	786	855	873	838	877	921
49. Garhwal & Chamoli	659	465	535	597	581	646	601
50. Nainital	856	1151	842	930	963	727	995
51. Tehri & Uttarkashi	394	517	553	634	572	565	658
HILL REGION	603	618	628	684	670	639	703
UTTAR PRADESH	430	484	442	463	443	445	472

ANNEXURE-5Regional And District Per Capita Income
Estimates At Current Prices

District/Region	(Rs.)							
	1968-69	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
0	1	2	3	4	5	6	7	8
1. Agra	516	596	606	719	775	903	913	1063
2. Aligarh	482	596	527	740	779	879	833	916
3. Budaun	396	453	285	560	608	669	613	714
4. Bareilly	513	574	595	682	774	967	885	987
5. Bijnor	602	642	657	822	899	1071	978	992
6. Bulandshahr	449	547	565	698	702	842	788	818
7. Etah	399	508	451	589	661	783	713	736
8. Etawah	404	477	462	551	644	744	653	676
9. Farrukhabad	375	453	440	518	601	635	712	716
10. Mainpuri	424	432	381	556	582	735	657	760
11. Mathura	500	643	570	750	800	879	828	921
12. Meerut	663	742	788	984	1030	1215	1214	1301
13. Moradabad	481	546	547	666	703	827	812	886
14. Muzaffarnagar	655	643	727	911	948	1088	1023	1135
15. Pilibhit	617	618	643	838	895	1032	1027	1097
16. Rampur	528	567	487	654	800	883	811	914
17. Saharanpur	693	697	757	1022	1103	1395	1452	1381
18. Shahjahanpur	473	523	558	569	682	795	793	858
<u>WESTERN REGION</u>	517	581	567	734	793	931	901	967
19. Barabanki	359	369	403	478	569	659	626	667
20. Fatehpur	326	394	363	482	556	592	555	666
21. Hardoi	364	422	371	529	561	623	594	638
22. Kanpur	590	695	677	874	984	1231	1207	1284
23. Kheri	530	502	523	679	797	814	729	778
24. Lucknow	589	677	730	817	920	1066	1171	1286
25. Rae Bareli	344	397	406	491	543	617	543	633
26. Sitapur	388	383	439	507	690	698	626	657
27. Unnao	358	417	436	470	618	653	629	590
<u>CENTRAL REGION</u>	442	492	501	618	721	815	786	844
28. Banda	404	491	446	665	676	618	676	730
29. Hamirpur	433	494	474	737	709	649	624	775
30. Jalaun	432	446	443	645	746	747	721	837
31. Jhansi & Lalitpur	483	543	498	638	761	756	802	918
<u>BUNDELKHAND REGION</u>	440	499	468	670	723	692	712	819

Annexure-5 (Contd.)

	0	1	2	3	4	5	6	7	8
32. Allahabad	373	460	498	604	669	741	796	874	
33. Azamgarh	240	276	307	343	389	498	456	474	
34. Bahrailch	350	373	366	408	463	504	478	511	
35. Ballia	323	289	332	368	424	454	434	499	
36. Basti	322	323	319	400	404	502	434	459	
37. Deoria	328	316	337	404	402	518	496	487	
38. Faizabad	339	347	449	397	471	571	579	530	
39. Ghazipur	294	316	396	399	469	479	495	556	
40. Gonda	362	354	365	453	534	556	477	501	
41. Gorakhpur	364	386	413	462	515	646	636	604	
42. Jaunpur	282	303	290	393	462	507	485	515	
43. Mirzapur	463	527	449	586	684	767	796	864	
44. Pratapgarh	319	302	395	368	471	495	458	491	
45. Sultanpur	308	358	476	418	499	548	434	484	
46. Varanasi	419	484	502	563	679	765	785	854	
EASTERN REGION	339	363	392	444	504	580	560	589	
47. Almora & Pithoragarh	373	535	457	595	721	822	735	763	
48. Dehradun	760	786	925	997	1124	1397	1520	1637	
49. Garhwal & Chamoli	583	465	469	604	763	1065	830	911	
50. Nainital	926	1151	911	1218	1462	1473	1470	1542	
51. Tehri & Uttarkashi	434	517	573	729	869	994	975	783	
HILL REGION	598	681	641	807	967	1121	1061	1093	
UTTAR PRADESH	436	484	489	604	676	775	751	802	

ANNEXURE-6

Dependency and Productivity Effects in the Per Capita
Income Differences Between Districts and
State as a Whole(1972-73)

District/Region	Components			
	$\{Y_i - Y\}$	DE_i	PE_i	IDP_i
0	1	2	3	4
1. Agra*	135.21	-83.60	191.18	27.63
2. Aligarh*	114.91	-76.43	168.22	23.13
3. Budaun	46.99	- 7.91	56.06	- 1.17
4. Bareilly*	99.98	-10.54	107.54	2.99
5. Bijnor*	157.85	-62.17	199.40	20.63
6. Bulandshahr*	98.51	-91.25	162.78	26.98
7. Etah	47.79	34.36	13.11	0.32
8. Etawah	27.79	57.95	- 26.40	- 3.77
9. Farrukhabad	55.29	20.98	31.31	3.00
10. Mainpuri	34.39	49.01	- 14.03	- 0.59
11. Mathura*	139.81	-75.90	193.63	22.08
12. Meerut*	294.41	-91.30	351.27	34.44
13. Moradabad*	64.31	-30.64	92.81	2.14
14. Muzaffarnagar*	198.81	-51.42	235.67	14.56
15. Pilibhit*	161.11	14.25	153.07	- 6.21
16. Rampur*	53.31	- 8.40	139.75	-78.04
17. Saharanpur*	335.71	-30.84	360.47	6.08
18. Shahjahanpur	11.87	-24.48	36.88	- 0.54
WESTERN REGION	115.45	-26.02	136.27	5.20
19. Barabanki	126.89	-34.12	179.41	-18.40
20. Fatehpur	95.79	-28.23	134.56	-10.54
21. Hardoi	79.19	- 2.83	82.78	- 0.76
22. Kanpur*	240.61	-37.29	262.82	15.07
23. Kheri*	0.81	31.89	- 32.23	1.15
24. Lucknow*	209.81	-27.33	226.86	10.28
25. Rae Bareli	77.29	-14.16	95.10	- 3.66
26. Sitapur	98.29	-17.26	114.45	1.10
27. Unnao	137.39	6.97	128.09	2.33
CENTRAL REGION	118.45	-13.60	132.43	- 0.38
28. Banda*	52.51	48.51	3.66	0.34
29. Hamirpur*	109.91	31.13	82.90	- 4.12
30. Jalaun*	33.31	-38.86	66.36	5.81
31. Jhansi & Lalitpur*	75.01	-16.64	88.19	3.46
BUNDELKHAND REGION	67.69	 6.04	60.28	1.37

Annexure-6(Contd.)

0	1	2	3	4
32.Allahabad	80.09	-16.09	101.03	4.85
33.Azamgarh	219.99	19.31	185.97	14.71
34.Bahraich	117.99	-40.72	180.51	-21.80
35.Ballia	182.09	30.76	136.73	14.60
36.Basti	154.09	-37.33	217.99	-26.57
37.Deoria	193.39	6.78	182.23	4.38
38.Faizabad	183.99	-7.87	197.86	-6.00
39.Ghazipur	169.19	13.38	149.19	6.61
40.Gonda	122.49	-52.59	70.13	104.95
41.Gorakhpur	118.79	-8.68	290.55	-163.08
42.Jaunpur	168.99	50.62	69.29	49.08
43.Mirzapur	33.49	-25.58	303.56	-244.48
44.Pratapgarh	222.59	6.74	95.08	120.77
45.Sultanpur	150.19	-8.26	-314.59	473.03
46.Varanasi	14.49	29.78	-13.81	-1.49
EASTERN REGION	142.12	-2.64	123.44	21.32
47.Almora & Pithoragarh*	27.91	103.59	-96.55	20.88
48.Dehradun*	410.51	97.31	350.32	-37.11
49.Garhwal & Chamoli*	134.31	225.74	-147.73	56.30
50.Nainital*	466.91	71.71	426.90	-31.71
51.Tehri & Uttarkashi*	171.31	275.53	-185.31	81.10
HILL REGION	242.19	154.76	69.53	17.90
UTTAR PRADESH				
a) Districts with PCI above the State's Average	157.79	6.96	141.76	9.07
b) Districts with PCI below the State's Average	123.78	0.02	111.80	11.96
c) All Districts	132.50	3.29	119.31	9.90

Note : 1. $Y_i - Y$ represents the deviation of PCI of i th district from the state's average, DE $_i$ the dependency effect, PE $_i$ the productivity effect and IDP $_i$ the interaction effect. Suffix i stands for i th district.

2. District with * mark had PCI levels above the State's average in 1972-73.

3. Results for regions/district groups have been obtained as arithmetic means of the results for corresponding districts.

ANNEXURE-7

Regional and Sectoral Effects in Differences
of Aggregate Per Worker Income Between Districts
and State as a Whole (1950-59)

District/Region	P _i -P	(Rs. at 1970-71 Prices)		
		RE	SE	IRS
0	1	2	3	4
1. Agra*	574.160	208.717	287.142	78.301
2. Aligarh*	420.490	274.673	92.838	52.978
3. Budaun	404.847	261.509	159.128	-15.790
4. Bareilly*	361.362	258.873	115.054	-12.565
5. Bijnor*	648.563	481.570	100.806	66.186
6. Bulandshahr*	299.911	205.820	60.736	33.354
7. Etah	76.875	10.427	72.940	-6.493
8. Etawah*	113.730	148.350	-9.654	-24.966
9. Farrukhabad	38.173	-15.513	40.530	13.156
10. Mainpuri*	87.311	144.847	-57.315	-0.219
11. Mathura*	648.400	471.315	108.542	68.542
12. Meerut*	858.955	478.696	335.801	44.457
13. Moradabad*	95.315	11.399	79.678	4.237
14. Muzaffarnagar*	526.906	421.532	72.398	32.975
15. Pilibhit*	564.900	600.964	-14.794	-21.269
16. Rampur*	376.903	328.353	51.828	-3.277
17. Saharanpur*	822.287	565.067	206.531	50.688
18. Shahjahanpur*	174.468	258.029	-50.866	-32.695
<u>WESTERN REGION</u> (Per Distt.)	394.09	284.15	91.74	18.20
19. Barabanki	335.627	167.034	145.312	23.281
20. Fatehpur	340.698	211.173	90.237	39.288
21. Hardoi	235.906	83.700	185.838	-33.631
22. Kanpur*	650.793	322.761	461.281	-133.250
23. Kheri*	40.650	205.698	-197.377	32.329
24. Lucknow*	610.106	130.296	647.418	-167.608
25. Rae Bareli	175.646	22.579	118.086	34.980
26. Sitapur	260.783	118.841	159.173	-17.231
27. Unnao	297.366	156.341	95.981	45.042
<u>CENTRAL REGION</u> (Per Distt.)	327.51	157.60	189.55	-19.64
28. Banda	192.247	37.860	140.716	13.670
29. Hamirpur*	13.314	127.944	-88.275	-26.354
30. Jalaun*	82.429	104.417	20.605	-42.594
31. Jhansi & Lalitpur*	248.252	132.527	108.862	0.862
<u>BUNDELKHAND REGION</u> (Per Distt.)	134.06	100.69	45.48	-12.11

Annexure-7(Contd.)

0	1	2	3	4
32. Allahabad	226.538	287.126	-67.170	6.583
33. Azamgarh	560.843	434.956	119.786	6.100
34. Bahraich	263.430	73.505	178.089	11.834
35. Ballia	245.088	154.387	63.842	26.858
36. Basti	426.509	211.987	190.765	23.761
37. Deoria	379.196	213.133	157.093	8.969
38. Faizabad	425.282	312.368	117.745	-4.832
39. Ghazipur	433.712	342.857	77.520	13.333
40. Gonda	353.179	173.547	210.360	-30.727
41. Gorakhpur	278.330	166.602	174.252	-62.524
42. Jaunpur	349.689	242.027	112.083	-4.421
43. Mirzapur	134.192	90.824	16.241	27.126
44. Pratapgarh	499.531	331.783	110.158	57.589
45. Sultanpur	299.447	131.026	87.482	80.939
46. Varanasi*	34.658	171.184	228.308	-22.485
EASTERN REGION (Per Distt.)	327.31	199.66	118.44	9.21
47. Almora & Pithoragarh	429.002	392.596	4.150	32.254
48. Dehradun*	921.049	252.858	248.672	419.518
49. Garhwal & Chamoli	64.529	21.370	-21.479	64.638
50. Nainital*	1162.409	869.252	136.370	156.786
51. Tehri & Uttarkashi	669.563	521.169	115.348	33.044
HILL REGION (Per Distt.)	649.31	411.45	96.61	141.25
UTTAR PRADESH (Per Distt.)	367.32	235.06	113.70	18.56

*Districts with productivity level(P_i) higher than
that for the state(P)

ANNEXURE-8

Regional and Sectoral Effects in Differences
of Aggregate Per Worker Income between
Districts and State as a whole
(1972-73)

District/Region	P _i - P	(Rs. at 1970-71 prices)		
		RE	SE	IRS
0	1	2	3	4
1. Agra*	704.431	268.455	379.344	56.630
2. Aligarh*	615.728	442.611	80.767	92.350
3. Budaun	177.754	7.820	141.057	28.877
4. Bareilly*	354.094	231.591	139.165	-16.662
5. Bijnor*	709.100	502.451	101.536	105.112
6. Bulandshahr*	611.732	500.582	44.172	66.977
7. Etah	45.879	-34.192	64.492	15.579
8. Etawah*	96.695	138.391	-28.543	-13.152
9. Farrukhababad	106.382	36.302	52.333	17.746
10. Mainpuri*	50.538	124.220	-71.736	-1.944
11. Mathura*	704.365	502.077	135.745	66.542
12. Meerut*	1270.874	826.645	388.840	55.388
13. Moradabad*	317.311	224.379	88.421	4.509
14. Muzaffarnagar*	820.563	702.090	58.610	59.863
15. Pilibhit*	483.523	533.475	-38.132	-11.819
16. Rampur*	204.618	153.086	59.745	-8.212
17. Saharanpur*	1209.637	914.929	283.068	11.634
18. Shahjahanpur	112.758	6.131	89.072	17.554
<u>WESTERN REGION</u> (Per Distt.)	477.56	337.84	109.33	30.39
19. Barabanki	520.923	321.157	191.067	8.699
20. Fatehpur	401.428	248.045	91.369	62.013
21. Hardoi	265.583	85.029	187.659	-7.104
22. Kanpur*	894.568	509.035	517.051	-131.518
23. Kheri	97.021	-99.714	202.000	-5.264
24. Lucknow*	763.083	202.956	811.001	-250.874
25. Rae Bareli	296.078	113.861	114.069	68.146
26. Sitapur	352.693	184.933	220.761	-53.001
27. Unnao	422.869	256.079	117.047	49.743
<u>CENTRAL REGION</u> (Per Distt.)	446.03	202.38	272.45	-28.80
28. Banda*	10.723	194.539	-132.770	-51.045
29. Hamirpur*	253.359	388.178	-50.815	-84.004
30. Jalaun*	231.298	257.691	22.290	-48.683
31. Jhansi & Lalitpur	293.877	156.667	123.065	14.144
<u>BUNDELKHAND REGION</u> (Per Distt.)	197.31	249.27	-9.56	-42.40

Annexure-8 (Contd.)

0	1	2	3	4
32. Allahabad	312.792	384.323	-84.572	13.041
33. Azamgarh	648.878	501.131	140.048	7.698
34. Bahraich	514.429	288.344	178.695	47.389
35. Ballia	490.408	382.202	69.837	38.368
36. Basti	619.298	364.333	224.171	30.793
37. Deoria	603.824	406.974	178.597	18.252
38. Faizabad	621.418	487.168	143.594	-9.345
39. Ghazipur	504.202	395.634	89.330	19.237
40. Gonda	524.078	310.738	269.935	-56.595
41. Gorakhpur	434.705	301.015	194.158	-60.467
42. Jaunpur	402.122	273.953	121.060	7.107
43. Mirzapur	270.987	222.094	66.815	-17.921
44. Pratapgarh	705.814	505.324	144.383	56.106
45. Sultanpur	497.209	296.113	123.029	78.066
46. Varanasi*	47.594	-199.421	286.280	-39.264
EASTERN REGION (Per Distt.)	479.85	328.00	143.02	8.83
47. Almora & Pithoragarh	246.120	201.512	-6.490	51.099
48. Dehradun*	1005.794	225.917	352.615	427.261
49. Garhwal & Chamoli	296.823	241.708	-5.520	60.635
50. Nainital*	1273.195	914.882	170.558	187.754
51. Tehri & Uttarkashi	338.473	163.818	46.342	128.312
HILL REGION (Per Distt.)	632.08	349.57	111.50	171.01
UTTAR PRADESH (Per Distt.)	465.84	305.24	138.92	21.68

*Districts with productivity land (Pi) higher than that for the state (P).

ANNEXURE-9

Regional and Sectoral Effects in Differences of Aggregate
Per Worker Income Between Districts and State
as a Whole (1975-76)

District/Region	P _i -P	(Rs. at 1970-71 prices)		
		RE	SE	IRS
0	1	2	3	4
1. Agra*	429.290	-2.726	371.086	60.930
2. Aligarh*	324.499	159.647	105.524	59.326
3. Budaun	438.271	264.913	159.638	13.719
4. Bareilly*	191.421	84.969	125.262	-18.811
5. Bijnor*	513.660	314.901	135.633	63.126
6. Bulandshahr*	276.751	175.669	56.878	44.204
7. Etah	177.869	93.679	95.971	-11.781
8. Etawah	61.015	10.475	20.013	30.525
9. Farrukhabad	275.197	211.337	47.994	15.864
10. Mainpuri	210.397	135.830	64.241	10.326
11. Mathura*	469.089	282.609	132.912	53.566
12. Meerut*	927.985	484.409	377.071	66.505
13. Moradabad*	69.786	-27.573	93.665	3.694
14. Muzaffarnagar*	355.838	234.940	74.868	46.029
15. Pilibhit*	197.185	248.982	-37.367	-14.429
16. Rampur*	95.116	44.985	62.686	-12.555
17. Saharanpur*	933.580	649.035	308.777	-24.233
18. Shahjahanpur	175.864	72.436	75.042	28.385
WESTERN REGION (Per Distt.)	340.16	191.03	126.11	23.02
19. Barabanki	609.361	419.230	184.138	5.992
20. Fatehpur	488.628	335.308	86.336	66.983
21. Hardoi	450.168	268.062	189.894	-7.289
22. Kanpur*	678.380	290.314	482.086	-94.020
23. Kheri	15.126	-151.880	122.145	44.862
24. Lucknow*	577.842	50.507	738.486	-211.152
25. Rae Bareli	453.557	271.085	115.226	67.245
26. Sitapur	443.760	276.775	187.261	-20.276
27. Unnao	446.996	283.391	102.467	61.137
CENTRAL REGION (Per Distt.)	462.65	226.98	245.34	-9.67
28. Banda	288.530	106.218	154.181	28.130
29. Hamirpur	94.757	-41.672	80.370	56.059
30. Jalaun*	76.546	114.587	24.993	-63.574
31. Jhansi & Lalitpur*	100.031	-22.817	110.614	12.234
BUNDELKHAND REGION (Per Distt.)	139.83	39.08	92.54	8.21

Annexure-9 (Contd.)

0	1	2	3	4
32. Allahabad*	62.733	-6.428	43.141	26.020
33. Azamgarh	726.379	595.912	133.262	-2.795
34. Bahraich	678.788	450.045	192.680	36.063
35. Ballia	662.301	556.591	72.750	32.959
36. Basti	815.827	568.211	241.058	6.557
37. Deoria	821.673	624.577	179.378	17.718
38. Faizabad	749.164	621.822	140.028	-12.686
39. Ghazipur	623.958	518.970	86.808	18.179
40. Gonda	612.137	398.924	291.025	-77.813
41. Gorakhpur	553.698	420.162	162.912	-28.975
42. Jaunpur	621.096	496.846	124.727	-0.478
43. Mirzapur	377.290	333.072	64.979	-20.760
44. Pratapgarh	779.579	584.176	137.151	58.251
45. Sultanpur	567.685	369.506	130.195	67.982
46. Varanasi*	5.202	-259.146	256.550	7.798
<u>EASTERN REGION</u> (Per Distt.)	577.17	418.22	150.42	8.53
47. Almora & Pithoragarh	406.783	342.451	-6.673	71.005
48. Dehradun*	755.786	36.416	417.814	301.556
49. Garhwal & Chamoli	394.172	319.687	13.161	61.323
50. Nainital*	1149.887	825.854	130.843	187.190
51. Tehri & Uttarkashi	528.168	343.434	42.822	141.910
<u>HILL REGION</u> (Per Distt.)	646.96	373.57	120.79	152.60
<u>UTTAR PRADESH</u> (Per Distt.)	445.85	270.17	151.14	24.54

*Districts with productivity level(B_i) higher than that for the state(B)

Annexure-10

Average Annual Compound Growth Rates of Sectoral
Incomes and Per Capita Incomes of Dis-
tricts : (1968-76)

(% per annum)

District/Region	Sectors			All Sectors	Population Per Capita Income
	PRI	MAN	SEC		
0	1	2	3	4	5
1. Agra	2.1	-	8.7	4.2	2.0
2. Aligarh	4.9	-	5.2	4.6	2.5
3. Budaun	9.4	-	0.8	7.5	4.0
4. Bareilly	2.2	-	6.2	3.7	1.6
5. Bijnor	4.5	-	4.9	4.5	2.1
6. Bulandshahr	7.2	-	1.3	5.4	3.8
7. Etah	5.4	-	4.1	4.9	3.1
8. Etawah	2.8	-	9.1	3.6	1.6
9. Farrukhabad	2.6	-	-0.4	2.7	0.6
10. Mainpuri	0.9	-	4.0	1.8	-0.1
11. Mathura	2.7	-	6.0	3.3	1.4
12. Meerut	6.6	-	8.6	6.5	4.1
13. Moradabad	7.6	-	7.6	6.7	3.8
14. Muzaffarnagar	7.3	-	2.3	5.9	3.5
15. Pilibhit	1.6	-	4.2	2.4	0.0
16. Rampur	-0.8	-	7.8	1.8	-0.8
17. Saharanpur	4.8	-	14.7	6.8	4.2
18. Shahjahanpur	-0.5	-	4.7	0.7	-1.1
19. Barabanki	-0.6	-	7.9	1.0	-0.7
20. Fatehpur	3.7	-	0.0	3.4	1.5
21. Hardoi	3.0	-	1.7	2.7	0.8
22. Kanpur	7.5	-	7.3	5.9	3.5
23. Kheri	1.8	-	4.9	1.6	-0.6
24. Lucknow	1.2	-	12.1	4.7	2.6
25. Rae Bareli	0.4	-	-2.6	0.6	-1.2
26. Sitapur	1.0	-	6.7	2.3	0.5
27. Unnao	4.9	-	-0.4	4.3	2.3
28. Banda	5.4	-	5.9	5.2	2.8
29. Hamirpur	4.2	-	-1.2	3.7	1.6
30. Jalaun	4.9	-	6.6	4.8	2.7
31. Jhansi & Lalitpur	2.6	-	3.7	3.3	1.11

Annexure 10 (Contd.)

	0	1	2	2	3	4	5
32.	Allahabad	7.2	2	10.1	6.6	2.2	4.3
33.	Azamgarh	3.7	1	3.0	3.7	1.9	1.8
34.	Bahraich	-3.1	-10	-1.1	2.0	1.9	-3.8
35.	Ballia	-3.7	-2	-8.5	2.5	1.8	-4.2
36.	Basti	-2.8	-1	-1.1	1.9	1.5	-3.3
37.	Deoria	-1.1	-1	0.6	0.2	2.0	-2.2
38.	Faizabad	-0.5	-1	1.1	0.8	1.8	-2.6
39.	Ghazipur	2.3	-	2.7	2.8	1.9	0.9
40.	Gonda	-1.9	-	1.0	0.7	1.6	-2.2
41.	Gorakhpur	1.1	-	1.0	1.8	1.9	-0.7
42.	Jaunpur	1.5	-	-5.3	1.4	1.9	-0.4
43.	Mirzapur	5.4	-	-2.1	3.4	2.4	1.0
44.	Pratapgarh	-0.4	-	3.9	0.5	1.8	-1.2
45.	Sultanpur	-0.6	-	9.3	0.6	1.8	-1.2
46.	Varanasi	3.5	-	9.1	5.1	2.2	2.9
47.	Almora & Pithoragarh	10.9	-	6.3	9.1	2.7	6.3
48.	Dehradun	2.6	-	7.5	4.3	2.9	1.3
49.	Garhwal & Chamoli	-3.9	-	5.4	-2.3	1.5	-3.7
50.	Nainital	5.7	-	6.3	5.8	3.4	2.3
51.	Tehri & Uttarkashi	13.9	-11	0.4	11.3	1.8	9.2

PRI : Primary Sector (Agriculture and Allied and Mining and Quarrying)

SEC : Secondary Sector (Manufacturing and Construction)

Note : The Growth rates were worked out taking into account the observations for all the individual years.

ANNEXURE-11

Distribution of Income by Major Sectors of the
Economy for Districts and Regions of Uttar
Pradesh, based on the Estimates at
Constant Prices 1970-71

(Percentages)

District/Region	1968-69			1972-73			1975-76		
	PRI 0	SEC 1	TER 2	PRI 4	SEC 5	TER 6	PRI 7	SEC 8	TER 9
1. Agra	38.15	17.15	44.70	35.43	20.49	44.08	36.86	19.56	43.58
2. Aligarh	57.27	14.57	28.16	60.26	13.24	26.50	55.88	16.47	27.65
3. Budaun	69.48	9.41	21.11	74.95	7.70	17.35	74.71	6.62	18.67
4. Bareilly	51.87	18.80	29.33	51.39	16.55	32.06	48.90	22.25	28.85
5. Bijnor	61.04	18.27	20.69	63.02	15.55	21.43	62.71	16.95	20.34
6. Bulandshahr	60.99	14.87	24.14	66.70	12.17	21.13	66.63	21.20	22.17
7. Etah	64.75	12.46	22.79	67.98	9.34	22.68	65.30	13.62	21.08
8. Etawah	70.32	8.16	21.52	66.71	11.02	22.27	70.56	9.39	20.05
9. Farrukhabad	69.37	8.45	22.18	68.71	7.59	23.70	71.97	6.41	21.62
10. Mainpuri	68.71	12.36	18.93	67.09	13.07	19.84	65.96	14.14	19.90
11. Mathura	62.28	11.05	26.67	60.13	12.70	27.17	59.70	12.58	27.72
12. Meerut	39.93	29.34	30.73	41.38	30.90	27.72	39.98	33.06	26.96
13. Moradabad	51.78	14.77	33.45	53.59	15.85	30.56	53.33	15.56	31.11
14. Muzaffarnagar	60.58	16.54	22.88	64.71	14.32	20.97	65.97	13.88	20.15
15. Pilibhit	72.69	10.32	16.99	69.25	12.14	18.61	74.29	9.38	16.33
16. Rampur	62.99	12.26	24.75	55.38	15.95	28.67	57.60	14.79	27.61
17. Saharanpur	50.26	20.82	28.92	47.70	26.07	26.23	41.22	37.06	21.72
18. Shahjahanpur	73.95	5.57	20.48	67.30	7.07	25.63	72.31	5.98	21.71
WESTERN REGION	56.48	16.32	27.20	56.30	17.19	26.51	55.44	19.18	25.38
19. Barabanki	75.59	10.08	14.33	68.98	14.07	16.95	70.32	15.32	14.36
20. Fatehpur	75.09	8.69	16.22	75.40	7.65	16.95	77.41	7.54	15.05
21. Hardoi	72.09	11.23	16.68	72.45	10.37	17.18	75.26	7.35	17.39
22. Kanpur	28.69	22.74	48.57	29.41	24.94	45.65	33.85	23.68	42.47
23. Kheri	77.07	9.63	13.30	76.16	8.89	14.95	80.00	5.28	14.72
24. Lucknow	22.06	15.48	62.46	16.41	20.79	60.80	18.52	23.55	57.93
25. Rae Bareli	78.26	8.22	13.52	78.15	6.87	14.98	77.62	7.00	15.38
26. Sitapur	70.79	11.84	17.37	64.04	17.14	18.82	69.69	12.15	18.16
27. Unnao	76.37	9.64	13.99	74.25	10.18	15.57	80.48	6.61	12.91
CENTRAL REGION	55.74	14.03	30.23	52.22	16.39	31.39	55.21	15.27	29.52
28. Banda	76.19	6.55	17.26	79.34	5.59	15.07	78.29	6.17	15.54
29. Hamirpur	76.04	9.75	14.21	80.81	6.75	12.44	77.17	8.36	14.47
30. Jalaun	69.28	7.33	23.39	70.37	7.82	21.81	72.04	7.70	20.26
31. Jhansi & Lalitpur	51.70	13.08	35.22	51.92	12.50	35.58	52.79	11.47	35.74
BUNDEL KHAND REGION	66.69	9.64	23.67	69.62	8.41	21.97	68.57	8.66	22.77

Contd./-

Annexure-11(Contd.)

	0	1	2	3	4	5	6	7	8	9
32. Allahabad	43.88	15.84	40.28	36.36	20.29	43.35	43.63	22.80	33.57	
33. Azamgarh	68.60	11.51	19.89	65.84	12.90	21.26	68.69	12.20	19.11	
34. Bahraich	80.53	6.11	13.36	77.27	5.97	16.76	77.54	6.27	16.19	
35. Ballia	72.12	8.85	19.03	71.36	4.96	23.68	68.26	8.31	23.43	
36. Basti	81.10	6.71	12.19	78.82	6.48	14.70	79.76	5.35	14.89	
37. Deoria	76.11	10.94	12.95	71.98	12.03	15.99	76.80	9.57	13.63	
38. Faizabad	64.75	10.59	24.66	58.04	12.15	29.81	63.87	8.76	27.37	
39. Ghazipur	64.60	13.93	21.47	63.48	13.98	22.54	66.41	12.55	21.04	
40. Gonda	75.02	8.94	16.04	69.66	11.51	18.83	72.93	7.84	19.23	
41. Gorakhpur	63.29	12.71	24.00	61.82	10.35	27.83	60.07	15.33	24.60	
42. Jaunpur	65.29	11.14	23.57	66.43	8.91	24.66	70.01	5.84	24.15	
43. Mirzapur	50.42	26.84	22.74	52.89	21.63	25.48	54.37	23.76	21.87	
44. Pratapgarh	78.67	4.38	16.95	73.95	5.18	20.87	76.88	4.26	18.86	
45. Sultanpur	82.15	4.17	13.68	78.54	5.14	16.32	78.37	5.55	16.08	
46. Varanasi	33.50	23.43	43.07	30.22	25.95	43.83	33.05	26.81	40.14	
EASTERN REGION	64.48	12.50	23.02	60.38	13.28	26.34	62.04	13.90	24.06	
47. Almora & Pithoragarh	69.76	9.09	21.15	74.17	8.47	17.36	74.55	7.74	17.71	
48. Dehradun	33.39	14.55	52.06	30.35	17.95	51.70	32.28	19.83	47.89	
49. Garhwal & Chamoli	80.69	5.01	14.30	76.58	6.63	16.79	77.51	6.02	16.47	
50. Naini Tal	63.38	13.18	23.44	63.65	12.66	23.69	65.28	13.37	21.35	
51. Tehri & Uttarkashi	74.36	11.92	13.72	82.70	8.18	9.12	85.07	6.32	8.61	
HILL REGION	63.88	10.60	25.52	64.31	11.10	24.59	65.36	11.32	23.32	
STATE	59.67	14.10	26.23	57.82	15.27	26.91	58.53	15.98	25.49	

PRI : Primary Sector; SEC : Secondary Sector;

TER : Tertiary Sector

Distribution of Income by Major Sectors of the Economy
for Districts and Regions of Uttar Pradesh, based
on the Estimates at Current Prices

(Percentages)

District/Region	1968-69						1972-73						1975-76						1975-77					
	PRI			SEC		TER	PRI			SEC		TER	PRI			SEC		TER	PRI			SEC		TER
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0.																								
1. Agra	37.70	16.42	45.88	38.96	19.33	41.71	30.24	19.39	50.37	32.46	18.22	49.32												
2. Aligarh	57.77	13.64	28.59	64.58	11.66	23.76	51.29	16.53	32.18	50.79	15.83	33.38												
3. Budaun	76.90	6.63	16.47	78.80	6.32	14.88	72.70	6.39	20.91	73.94	5.53	20.48												
4. Bareilly	51.81	18.17	30.02	52.26	19.09	28.65	44.09	22.34	33.57	46.02	19.67	34.31												
5. Bijnor	64.33	15.84	19.53	65.66	16.15	18.19	59.66	16.95	23.39	53.25	20.46	26.29												
6. Bulandshahr	62.79	13.35	23.86	69.35	10.99	19.66	61.77	11.67	26.56	57.17	13.63	29.15												
7. Etah	68.48	10.21	21.31	74.81	6.74	18.45	63.58	18.06	23.36	64.22	9.96	25.82												
8. Farrukhabad	70.72	7.55	21.73	69.75	9.84	20.41	62.89	10.68	26.43	59.48	11.40	29.12												
9. Farrukhabad	68.55	8.13	23.32	71.73	6.62	21.65	69.68	6.18	24.14	65.27	7.36	27.37												
10. Mainpuri	70.99	10.85	18.16	70.92	11.36	17.72	63.10	13.91	22.99	63.97	13.38	22.65												
11. Mathura	59.36	11.17	29.45	63.63	11.31	25.06	51.67	13.76	34.57	50.99	13.58	35.43												
12. Meerut	46.08	25.49	28.43	48.16	27.40	24.44	38.32	31.48	30.20	37.29	30.59	32.12												
13. Moradabad	58.03	12.11	29.86	58.72	14.05	27.23	50.85	15.08	34.07	50.05	14.36	35.59												
14. Muzaffarragarh	68.05	12.79	19.16	70.74	11.69	17.57	61.93	14.01	24.06	60.59	14.66	24.75												
15. Pilibhit	73.69	9.36	16.95	73.99	10.15	15.86	70.35	5.79	19.86	68.58	10.21	21.21												
16. Rampur	63.51	11.38	25.11	60.37	14.05	25.58	53.66	14.77	31.57	54.38	13.68	31.94												
17. Saharanpur	54.57	18.33	27.10	53.05	23.51	23.44	39.05	35.85	20.10	39.10	30.35	30.05												
18. Shahjahanpur	72.55	5.55	21.90	70.39	6.44	23.17	68.45	6.23	25.32	67.41	5.89	26.73												
19. WESTERN REGION	59.31	14.53	26.16	60.94	15.52	23.54	51.74	18.93	29.33	50.87	17.97	31.16												
1. Barabanki	76.50	9.11	14.39	74.95	11.21	13.84	68.77	15.02	16.21	67.83	14.82	17.35												
20. Fatehpur	74.26	8.38	17.36	78.36	6.52	15.12	71.21	8.66	20.13	72.90	7.95	19.15												
21. Hardoi	73.64	9.93	16.43	77.22	8.37	14.41	73.12	7.16	19.72	71.58	7.44	20.98												
22. Kanpur	28.57	22.26	49.17	34.17	23.60	42.23	31.63	21.40	46.97	30.27	19.33	50.40												
23. Kheri	80.01	8.14	11.85	81.15	7.07	11.78	78.07	5.7	25.7	76.49	16.86	18.03												

Contd./-

	0	1	2	3	4	5	6	7	8	9	10	11	12
24. Lucknow	23.32	14.59	62.9	23.52	19.65	56.83	18.59	21.18	60.23	18.56	19.00	62.44	
25. Rae Bareli	76.44	8.31	15.25	80.31	6.00	13.69	73.50	7.44	19.06	72.09	9.25	18.66	
26. Sitapur	73.81	10.20	15.99	73.40	10.97	15.63	69.45	11.10	19.45	67.95	10.92	21.12	
27. Unnao	79.00	8.13	12.87	79.45	8.00	12.55	79.31	6.29	14.40	73.64	8.87	17.49	
CENTRAL REGION													
28. Banda	76.59	5.95	17.46	81.63	4.80	13.57	72.38	7.01	20.61	69.67	8.55	21.78	
29. Hamirpur	75.80	9.25	14.95	82.90	5.80	11.30	69.41	10.13	20.46	73.30	7.93	18.77	
30. Jalaun	70.72	6.51	22.77	73.84	6.59	19.57	64.36	8.73	26.91	65.69	7.86	26.45	
31. Jhansi & Lalitpur	52.65	12.20	35.15	54.53	11.78	33.69	47.58	11.87	40.55	49.34	10.37	40.29	
BUNDEL KHAND REGION													
32. Allahabad	45.07	14.84	40.09	52.08	16.23	31.69	42.45	20.86	36.69	40.98	20.91	38.11	
33. Azamgarh	70.29	19.57	72.02	10.37	17.61	68.55	11.08	20.37	69.16	8.52	22.32		
34. Bahraich	78.71	6.25	15.04	77.83	5.61	16.56	71.22	7.02	21.76	71.11	5.65	23.24	
35. Ballia	73.47	7.81	18.72	74.77	4.17	21.06	64.21	8.37	27.42	66.56	6.24	27.20	
36. Basti	80.79	6.37	12.84	81.12	5.64	13.24	75.56	5.58	18.86	74.76	4.85	20.39	
37. Deoria	78.57	9.51	11.92	78.43	9.14	12.43	75.46	9.05	15.49	72.17	9.86	17.97	
38. Faizabad	69.19	8.60	22.21	66.26	9.52	24.22	67.49	7.00	25.51	60.62	7.61	31.77	
39. Ghazipur	67.02	12.48	20.50	69.02	11.56	19.42	63.84	12.16	24.00	62.84	12.81	24.35	
40. Gonda	75.78	8.20	16.02	73.95	9.72	16.33	67.89	8.28	23.83	65.94	8.19	25.87	
41. Gorakhpur	64.74	11.80	23.46	67.92	8.80	23.28	60.53	13.74	25.73	53.70	15.4c	30.90	
42. Jaunpur	66.76	9.87	23.37	71.17	7.42	21.41	67.62	5.50	26.88	64.72	6.41	28.87	
43. Mirzapur	54.37	24.30	21.33	60.08	18.33	21.59	53.59	22.14	24.27	51.74	22.78	25.48	
44. Pratapgarh	82.38	3.32	14.30	80.31	3.79	15.90	76.56	3.82	19.62	74.70	4.45	20.85	
45. Sultanpur	80.80	4.15	15.05	81.46	4.29	14.25	72.75	6.23	21.02	72.99	5.46	21.55	
46. Varanasi	36.30	21.58	42.12	36.63	23.60	39.77	31.08	25.33	43.59	28.21	26.09	45.70	
EASTERN REGION													
	65.91	11.46	22.63	66.61	11.21	22.18	59.87	13.18	26.95	57.35	13.40	29.25	

Annexure-12(Contd.)

	0	1	2	3	4	5	6	7	8	9	10	11	12
47. Almora & Pithoragarh	71.11	8.28	20.61	75.55	7.69	16.76	71.78	7.95	20.27	67.99	9.86	22.15	
48. Dehradun	32.21	14.32	53.47	29.68	17.77	52.55	29.85	18.45	51.70	22.18	23.32	54.50	
49. Garhwal & Chamoli	79.40	5.14	15.46	73.26	7.26	19.48	72.02	6.99	20.99	71.41	6.92	21.67	
50. Naini Tal	65.90	12.71	21.39	68.65	10.73	20.62	59.81	14.16	26.03	57.36	14.36	28.28	
51. Tehri & Uttarkashi	78.21	9.75	12.04	82.87	7.81	9.32	82.78	6.79	10.43	75.86	9.39	14.75	
HILL REGION	64.74	10.26	25.00	65.38	10.47	24.15	60.71	11.72	27.57	55.91	13.68	30.41	
STATE	61.56	12.84	25.60	62.98	13.34	23.68	55.23	15.59	29.18	53.64	15.20	31.16	

PRI : Primary Sector; SEC : Secondary Sector

TER : Tertiary Sector

ANNEXURE-13

Selected Indicators of Sectoral Characteristics
and Infrastructural Development and Finan-
cial Resource Inflows for Districts
of Uttar Pradesh

The districtwise data presented onwards in this Annexure is partly in the form of indicators and partly as 'absolute figures and not ratios, which were in turn derived in a few alternatives from them. The captions for names/definitions of data columns have been given in abbreviated forms, which along with column reference numbers are presented below. Data sources, necessary footnotes and the data chart follow subsequently in that order.

DEFINITIONCaption Col.No.

1.	Percentage of Gross Cropped Area (1972-75) under	
1.1	Paddy	Pdy% 1
1.2	Wheat	Wht% 2
1.3	Oilseeds, Sugarcane & Potato	CC% 3
1.4	High Yielding Varieties (HYV)	HYV% 4
2.	Percentage of HYV area in total area(1972-75) under	
2.1	Paddy	HY(P)% 5
2.2	Wheat	HY(W)% 6
3.	Net irrigated area as percentage of Net area sown	
3.1	Year 1968-69	NIA%(9) 7
3.2	Year 1976-77	NIA%(7) 8
4.	Percentage of Net Irrigated Area Served by Tubewells	
4.1	Year 1968-69	YW%(9) 9
4.2	Year 1976-77	TW%(7) 10

5.	Percentage of Gross Irrigated Area to Gross Cropped Area		
5.1	Year 1968-69	GIA%(9)	11
5.2	Year 1976-77	GIA%(7)	12
6.	Cropping Intensity(Percentage of Gross Cropped Area to Net Area Sown)		
6.1	Year 1968-69	CI(9)	13
6.2	Year 1975-76	CI(6)	14
7.	Distribution of Fertilizers(Kg. per Hectare)		
7.1	Year 1968-69	FERT(9)	15
7.2	Year 1975-77	FERT(7)	16
8.	Agricultural Productivity (Value of Output Per Hectare of Net Area Sown in Rs. at 1960-61 prices)		
8.1	Year 1968-69	PTY(9)	17
	Year 1975-76	PTY(6)	18
9.	Average Size of Agricultural Holdings (1976-77)	LHS	19
10.	Index of Mechanisation (State = 100, year 1972)	MECH	20
11.	Average Annual Compound Growth Rate(1968-76) of Income of		
11.1	Manufacturing (Rejistered)	MRGR	21
11.2	Manufacturing (Un-registered)	MUGR	22
11.3	Manufacturing (Total)	MTGR	23
12.	Percentage of Urban Population to Total Population (1971)	UPR	24
13.	Length of Metalled Roads Per Thousand Sq.Km. of Area (Kms.) March 1975	Density Road Dens.	25
14.	Percentage of Inhabited Villages Connected (below 1 Km. from) Pucca Road, 1976	VCR%	26
15.	Percentage of Electrified Villages 1976	VE%	27
16.	Number of Bank Offices Per Lakh of Population	Bank Dens.	28
17.	Average Annual Plan Expenditure(1974-77) in Lakh Rs.		
17.1	Agricultural	PE Agri.	29
17.2	Total	PE Total	30

18.	Loan Distributed by Land Development Bank (1975-76) in Lakh Rs.	LDB Loan	31
19.	Loan Distributed by Commercial Banks (1975-76) in Thousand Rs.		
19.1	Total	CB Loan (T)	32
19.2	Priority/Weaker Sector	CB Loan (P/W)	33
20.	Commercial Bank Financing (1975-76) for		
20.1	Agriculture	CBF (Agri)	34
20.2	Craftsmen, Qualified Entrepreneurs and Small Scale Industries	CBF (SSI)	35
20.3	Retail Trade & Small Business	CBF (RTSB)	36
20.4	Professionals and Self-Employed	CBF (PSE)	37
21.	Short-term Loan Distributed per Capita (Rural), 1974-75 in Rs.	STL	38

The data sources for the 21 items listed above are

<u>Item Nos.</u>	<u>Data Source</u>
1, 2, 13, 14, 15, 16, 21	Ranking of Districts by Indicators of Resource Potentials and Level of Development, Area Planning Division, State Planning Institute (mimeo & undated), Govt. of U.P.
3, 4, 5, 6, 9	Bulletins of Agricultural Statistics and Season & Crop Reports, Government of Uttar Pradesh.
7, 8	Districtwise Indicators of Development (Hindi), Area Planning Division, State Planning Institute, Government of Uttar Pradesh 1979.
10	R.C. Sinha, Agricultural Development and Rural Employment in T.S. Papola et al. Studies on Development of Uttar Pradesh, Giri Institute of Development Studies, Lucknow, 1979.
11	District Income Estimates
12	Census 1971
17	District Annual Plans, 1977-78 and 1978-79
18	U.P. State Co-operative Land Development Bank, (Head quarter), Lucknow.

19, 20

Directorate of Institutional
Finance, Government of Uttar Pradesh,
Lucknow.

Note :

1. Index of Mechanisation (Item 10) was worked out by linearly pooling the numbers of tubewells and pumping sets (electric and diesel), power tillers, four-wheal tractors, crawler tractors and threshers (wheat and rice) per hectare of net area sown, and these district-wise figures were indexed with that for Uttar Pradesh at 100.
2. Average annual plan expenditure (1974-77), as reported in district plans may not be very accurate for organisational reasons. Still they have been used for want and of alternative data source.
3. The figures of commercial bank loans (Item 19) were obtained as differences of total (cumulative) advances between last fridays of December.
4. Priority/weaker/sector (Item 19.2) included the items 20.1 to 20.4 and Transport and Industrial Estate as reported.
5. For individual items 20.1 to 20.4, the figures of loan advanced were not available. The differences between 'Balance Outstanding' reported as on last friday of consecutive December months across districts were taken as proxy for the district-wise pattern of loaning for each of these items.

D A T A C H A R T

District	D		A		T		A		N		A		M		E		S			
	Pdy%	Wht%	CC%	HYV%	HY(P)%	HYW%	NIA%	NIA(%)	TW%(9)	TW%(7)	GIA%	GIA%	CI(9)	CI(6)	FERT(9)	FERT(7)	PTY(9)	PTY(6)	LHS	MECH
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Agra	0.40	29.10	9.70	27.85	100.00	93.50	41.00	53.90	33.87	65.91	36.50	43.70	120.34	178.61	9.87	32.69	600.84	761.46	1.58	107.0
2. Aligarh	2.00	32.30	4.20	34.40	36.40	100.00	78.50	85.90	40.37	62.10	65.00	64.90	149.39	153.73	12.95	31.02	813.94	955.35	1.64	116.0
3. Budaun	6.40	33.90	17.60	22.64	39.40	70.90	33.60	50.50	49.90	50.54	30.80	44.60	121.33	131.87	11.65	31.19	769.19	928.53	1.09	52.0
4. Bareilly	24.70	28.40	17.50	23.69	24.80	62.80	34.70	48.00	10.64	27.13	32.20	45.70	130.18	137.70	15.61	41.01	791.26	1107.99	1.10	60.0
5. Bijnor	21.40	28.60	28.70	26.04	34.80	68.20	33.50	51.80	68.96	76.37	30.50	41.30	124.76	128.48	13.25	33.57	610.95	746.42	1.58	140.0
6. Bulandshahr	1.60	34.00	10.10	33.62	42.90	100.00	75.90	87.50	40.26	59.45	66.10	77.20	148.20	158.25	30.22	55.70	854.96	1148.10	1.56	226.0
7. Etah	5.10	31.50	7.20	32.41	50.00	91.90	57.20	67.90	22.02	40.95	49.40	52.20	140.11	147.77	12.06	25.74	721.38	929.03	1.02	97.0
8. Etawah	14.90	25.60	9.80	23.91	20.40	82.60	49.80	64.60	11.88	21.74	44.80	59.50	139.82	129.77	13.64	25.08	727.53	849.53	1.08	80.0
9. Farrukhabad	6.10	31.00	16.30	21.52	20.80	66.70	42.60	57.00	43.47	58.48	37.70	48.40	130.83	137.34	29.19	49.05	786.23	1058.11	0.90	126.0
10. Mainpuri	11.90	34.30	8.00	40.98	52.20	95.50	64.10	74.90	23.66	43.38	53.30	60.40	136.59	103.74	32.02	31.21	801.80	940.45	0.97	169.0
11. Mathura	0.90	36.50	6.90	40.03	100.00	100.00	56.70	74.20	20.05	41.54	49.60	59.30	125.41	134.54	9.21	18.29	779.78	803.13	1.99	123.0
12. Meerut	3.50	33.90	30.30	31.71	43.05	91.00	80.80	89.00	36.24	52.52	78.90	83.40	146.52	153.62	36.25	64.74	1105.11	1502.88	1.34	325.0
13. Moradabad	13.90	36.10	18.00	34.40	31.70	85.70	43.00	62.50	39.97	46.37	39.30	53.00	128.96	137.37	19.20	37.23	653.16	955.87	1.28	123.0
14. Muzaffarnagar	7.60	33.30	30.20	34.55	66.70	89.10	75.10	82.60	33.69	47.07	71.40	76.50	140.08	144.61	33.55	65.42	1170.54	1673.50	1.50	1011.0
15. Pilibhit	34.70	31.20	16.80	25.90	31.10	52.90	26.70	51.30	16.75	48.46	24.30	44.20	131.34	148.51	13.40	32.65	875.63	1129.67	1.23	30.0
16. Rampur	24.10	32.70	11.20	30.57	50.90	58.80	26.60	55.00	28.92	29.67	22.60	47.00	141.84	150.51	15.90	42.75	841.51	1061.69	1.16	147.0
17. Saharanpur	16.10	30.60	21.00	28.44	36.50	77.40	45.30	61.30	35.10	58.30	41.60	55.00	142.27	149.65	19.34	53.16	984.04	1337.00	1.63	231.0
18. Shahjahanpur	20.20	34.00	13.60	27.14	34.80	61.50	28.50	51.10	25.82	46.83	26.60	50.70	122.70	131.83	8.62	32.64	790.74	889.54	1.07	73.0
19. Barabanki	30.00	24.10	7.40	34.91	58.60	69.20	35.50	39.20	14.32	25.25	29.20	36.30	138.72	140.15	31.16	41.99	1001.32	1059.35	0.82	139.0
20. Fatehpur	19.20	18.70	4.80	16.90	18.10	68.10	29.30	38.40	2.63	24.27	27.50	35.90	118.81	123.41	4.81	18.02	603.33	738.38	1.19	38.0
21. Hardoi	11.70	28.10	18.70	16.89	14.30	49.40	21.10	42.90	13.13	30.71	17.60	37.90	124.86	127.93	5.13	15.95	666.75	751.98	1.02	56.0
22. Kanpur	12.60	24.80	9.90	18.32	20.60	63.90	32.80	46.40	11.00	27.45	31.00	46.40	120.47	120.59	12.38	23.76	620.31	787.60	1.06	69.0
23. Kheri	21.70	24.90	21.50	13.49	14.80	40.40	12.90	18.10	59.81	66.44	10.70	16.40	126.47	130.38	6.24	24.01	721.89	804.82	1.16	106.0
24. Lucknow	20.70	30.00	7.70	19.49	19.10	50.90	36.60	50.00	6.75	21.58	33.40	47.10	129.87	129.31	11.44	42.98	813.58	888.91	0.99	46.0
25. Rae Bareli	27.50	20.90	3.30	23.10	16.50	91.90	46.30	48.90	3.66	13.84	42.40	47.90	132.70	131.72	7.01	20.54	386.45	877.46	0.82	30.0
26. Sitapur	18.40	29.50	15.90	18.45	19.80	46.60	20.00	30.90	22.61	37.14	16.40	27.10	127.10	121.92	5.41	13.48	698.41	750.78	0.99	46.0
27. Unnao	17.80	36.10	7.00	21.16	17.70	71.30	32.30	46.50	2.72	15.99	28.80	44.20	131.71	145.27	4.14	14.59	767.16	976.69	0.97	40.0
28. Banda	15.20	21.90	1.90	6.95	11.60	24.20	15.10	18.80	0.35	0.84	14.50	19.30	116.07	111.80	1.53	3.33	400.09	437.01	2.12	8.0
29. Hamirpur	1.60	26.30	6.50	4.14	42.90	25.90	14.40	16.90	0.13	1.09	14.00	16.60	103.71	103.16	1.35	2.61	338.04	346.74	2.58	21.0
30. Jalaun	2.80	32.50	5.30	15.95	100.00	41.10	34.10	31.60	0.18	0.81	34.20	31.70	104.25	102.60	6.79	13.41	376.97	459.46	2.23	54.0
31. Jhansi & Lalitpur	3.90	30.80	4.60	8.21	5.00	15.90	21.10	25.1												

Data Chart (Contd.)

District	D A T A										N A M E S									
	Road			Bank		PE		LDB		CB		CBF		CBF		CBF		CBF		
	MRGR	MUGR	MTGR	UPR	Dens.	VCR%	VE%	Dens.	Agri.	Total	Loan	Loan(T)	Loan(P/W)	Aqri.	(SSI)	(RTSB)	(PSE)	STL		
0	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		
1. Agra	11.47	12.48	11.95	36.61	162.90	21.40	37.06	2.70	374.04	507.64	77.45	58827.00	57021.00	8610.0	27878.0	1342.0	4221.0	7.26		
2. Aligarh	14.63	0.73	5.17	17.85	145.60	21.26	41.29	1.80	99.48	191.81	65.92	10949.00	12110.00	3869.0	4424.0	2156.0	2582.0	8.65		
3. Budaun	-3.57	-6.39	-6.04	9.35	91.60	14.72	30.71	1.10	131.56	288.18	101.69	8856.00	7013.00	4341.0	1534.0	894.0	170.0	8.14		
4. Bareilly	12.07	2.06	6.23	22.28	117.50	17.74	24.71	1.90	155.29	286.61	43.52	20252.00	9082.00	27486.0	5877.0	1256.0	948.0	13.12		
5. Bijnor	8.97	1.77	3.13	18.10	168.00	30.73	44.86	1.60	359.10	422.85	66.89	21435.00	10751.00	17112.0	3547.0	827.0	1651.0	23.98		
6. Bulandshahr	11.85	-2.41	-1.36	13.92	158.70	26.87	60.25	1.40	129.35	197.36	46.32	55876.00	8775.00	4361.0	1002.0	1430.0	1384.0	22.81		
7. Etah	1.30	14.33	3.28	9.82	133.80	18.77	36.42	1.40	122.04	414.15	52.85	13103.00	9626.00	6008.0	326.0	1007.0	474.0	5.42		
8. Etawah	15.83	26.30	12.82	9.79	125.90	19.23	27.08	1.50	214.16	296.21	39.85	5231.00	5153.00	3066.0	1563.0	114.0	91.0	9.59		
9. Farrukhabad	-24.41	-3.49	-5.95	10.91	114.10	21.16	50.68	1.70	133.59	246.54	63.12	25348.00	22190.00	6194.0	8787.0	0.0	492.0	10.29		
10. Mainpuri	7.99	1.66	3.38	8.44	148.60	20.56	28.43	1.10	189.25	304.41	37.52	15254.00	8268.00	3899.0	2954.0	529.0	177.0	7.07		
11. Mathura	11.60	6.49	7.29	16.49	162.90	27.72	29.98	2.40	207.42	403.28	40.65	34312.00	22327.00	12682.0	2490.0	2273.0	4110.0	7.35		
12. Meerut	18.47	0.20	9.88	22.64	195.70	44.90	62.16	3.40	138.12	452.02	117.96	179658.00	62778.00	17348.0	25192.0	3409.0	5842.0	9.91		
13. Moradabad	16.19	6.78	9.58	23.77	133.30	18.18	49.53	1.70	149.08	1143.66	95.27	56755.00	46913.00	8748.0	10730.0	3676.0	1732.0	25.16		
14. Muzaffarnagar	-8.35	1.00	-0.17	13.86	179.70	43.69	77.02	2.40	70.93	482.35	66.27	25490.00	18789.00	10094.0	3202.0	1392.0	1169.0	24.67		
15. Pilibhit	19.09	-5.02	2.24	13.67	97.50	20.59	26.47	2.10	96.01	153.61	26.98	25633.00	24032.00	10367.0	9526.0	1192.0	387.0	15.92		
16. Rampur	21.63	4.33	1.53	19.53	159.00	20.24	37.18	1.40	223.70	252.18	33.13	11277.00	9112.00	2188.0	5703.0	390.0	315.0	15.85		
17. Saharanpur	26.01	4.49	18.04	23.50	146.40	30.33	50.24	2.70	220.38	482.92	120.12	32446.00	28267.00	9503.0	10559.0	2934.0	4334.0	21.42		
18. Shahjahanpur	23.21	-5.46	4.04	15.24	103.00	18.10	20.74	1.20	47.87	92.40	35.24	22039.00	14628.00	7385.0	5678.0	1366.0	243.0	7.54		
19. Barabanki	90.57	6.10	8.52	5.76	133.80	19.10	21.93	1.00	755.93	937.39	17.01	10692.00	7698.00	5127.0	974.0	810.0	168.0	4.90		
20. Fatehpur	13.98	-6.20	5.08	5.63	132.80	16.49	35.80	1.20	304.62	448.66	35.54	3805.00	3720.00	3836.0	251.0	488.0	171.0	8.69		
21. Hardoi	3.44	-0.63	7.15	7.90	94.20	14.90	15.27	0.80	69.28	133.06	43.43	20614.00	4656.00	2440.0	1280.0	690.0	0.0	4.91		
22. Kanpur	9.63	5.71	7.72	42.80	136.40	18.92	23.52	3.60	501.26	1432.62	67.93	150925.00	45374.00	2841.0	22934.0	7930.0	447.0	1.16		
23. Kheri	-6.33	-14.33	-8.93	6.21	95.10	20.72	32.16	1.10	90.97	170.69	60.55	26879.00	14299.00	6431.0	3188.0	2749.0	391.0	10.70		
24. Lucknow	17.64	16.55	17.35	50.90	217.70	24.48	39.69	3.50	378.00	705.53	30.98	27722.00	176031.00	88585.0	16534.0	6225.0	1146.0	5.56		
25. Rae Bareli	-0.38	-7.38	-8.09	3.40	181.40	23.39	38.82	1.40	1032.90	1439.78	48.42	17079.00	12614.00	4419.0	6783.0	734.0	434.0	6.00		
26. Sitapur	0.36	10.83	7.29	7.54	113.40	12.67	15.24	0.90	125.99	211.54	39.94	23668.00	10711.00	5145.0	4559.0	284.0	656.0	5.79		
27. Unnao	7.28	-7.44	-4.02	2.57	117.90	17.19	11.13	1.00	90.10	195.77	32.91	4594.00	3574.00	1577.0	1398.0	309.0	290.0	3.95		
28. Banda	-9.26	6.23	5.86	8.29	81.80	13.09	20.33	1.20	236.31	322.93	16.52	1378.00	1311.00	932.0	350.0	679.0	108.0	2.05		
29. Hamirpur	0.00	-6.68	-6.68	9.91	90.20	15.67	15.59	1.40	215.95	446.53	12.68	2044.00	461.00	1361.0	37.0	384.0	0.0	3.65		
30. Jalaun	-14.63	12.23	11.59	13.75	120.10	23.02	21.73	1.50	224.41	326.54	11.06	184.00	1215.00	1158.0	9.0	17.0	0.0	14.84		
31. Jhansi &																				
32. Lalitpur	-10.73	4.44	2.04	24.56	103.10	13.57	11.03	1.90	173.45	413.89	13.85	7962.00	6996.00</							